

**EPA SLN No. KS100003**

## NEW APPLICATIONS

DATE: 12-29-2010

FILE NUMBER: KS100003

FEP (OPPIN ENTRY) Bp 12-29-2010  
(Initial and Date)

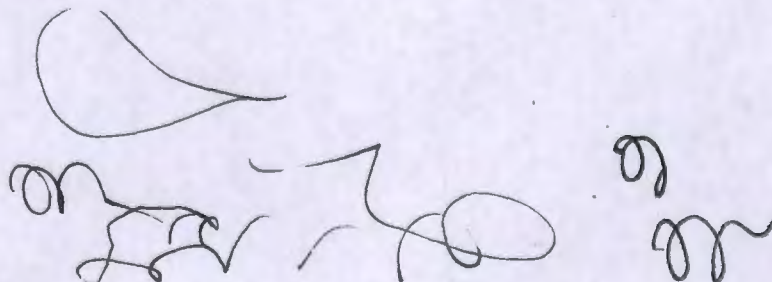
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☒ ASSIGN TO PM 09 (NO DATA)

☐ JACKET TO SHELF (DATA)



August 23, 2011

Attention: Team Leader – Debra Rate (Team 9)  
Risk Integration, Minor Use and Emergency Response Branch  
U.S. EPA Office of Pesticide Programs (7505P)  
Room S4900, One Potomac Yard  
2777 Crystal Drive

Dear Ms. Rate:

The Kansas Department of Agriculture has accepted for Special Local Need (SLN) registration the pesticide product Rozol® Prairie Dog Bait, EPA Registration Number 7173-286. The purpose of this SLN is to provide the farmers and ranchers of western Kansas the ability to apply product by use of a mechanical bait application machine in addition to the hand placement of bait described on the Section 3 label. The SLN is for the period of October 1, 2011 to March 15, 2012.

The need for this SLN is two-fold; to reduce exposure of applicators to chlorophacinone, and thus reduce the human health risks of using Rozol Prairie Dog Bait and to limit the economic impact of inefficient control of the black tailed prairie dog.

The Rozol Prairie Dog Bait label states:

- CAUTION: Harmful if swallowed or absorbed through the skin because it may reduce the clotting ability of blood and cause bleeding.
- Do not get in eyes on skin or on clothing. All handlers (including applicators) must wear shoes plus socks, and gloves.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing.
- As soon as possible, wash hands thoroughly after applying bait....

The MSDS for Rozol Prairie Dog Bait states:

- May be harmful if swallowed or absorbed through skin....
- Chronic effects: Prolonged or repeated exposure to small amounts of product can produce cumulative toxicity. Symptoms of toxicity include lethargy, loss of appetite, reduced clotting of blood, and bleeding.

The section 3 label for Rozol Prairie Dog Bait includes the following restriction on the label:

- "Only use for ....application methods specified on this label."



- **Application method:** Hand application of bait, at least 6 inches down prairie dog burrows. This Bait may only be used in underground applications. **Do not apply bait on or above ground level.....**
- **Application:** Apply ¼ cup (53 grams or nearly 2 ounces) of bait at least 6 inches down active prairie dog burrows. **Make sure no bait is left on the soil surface at the time of application.** Applicator must retrieve and dispose of any bait that is spilled above ground or placed less than 6 inches down the burrow entrance.

Mechanical baiting has been shown to be a safe and effective method of application. The baiting season is October 15 – March 15 when prairie dog natural food sources are at their lowest and there is greater bait acceptance. Environmental conditions such as wind, snow, frigid temperatures, etc. limit the time the bait is actually applied to about 30-40 days of the allowable baiting season. Applicator safety becomes an issue. Hand baiting has the potential of exposing the applicator to venomous snake bites and increased pesticide exposure.

Rozol Prairie Dog bait is a restricted use pesticide due to inhalation hazard. Hand baiting significantly increases primary inhalation during the baiting procedure but also secondary inhalation from the bait that adheres to the applicator's clothing. Hand baiting may involve dropping bait into a prairie dog burrow from a scoop used to measure the amount of bait. This may be done from hand height from a standing position. Short grass prairie areas are also typically regions that are windy. The average annual wind speeds for Goodland, KS (NW), and Dodge City, KS, (SW) are 12.5 mph and 14 mph, respectively. The greater the distance above the hole that the bait is released will increase the amount of bait that does not reach the bottom of the burrow opening. One would assume the lower height the bait was released by using the mechanical baiting device would be desirable when baiting under windy conditions. Human error related to fatigue and cold weather exposure will increase the amount of exposed bait on the surface and likely as not result in the bait not placed at least 6 inches below the surface as required by the label. Baiting by mechanical means has been shown to be reliable and to deliver a calibrated amount delivering the bait the mandatory 6 inches below the surface.

Original data submitted prior to the product obtaining a section 3 label was based on hand and mechanical data Lee and Hygnstrom (2007). Data was summarized from 70 trial days with 50 burrows each day. The methods of application were hand, mechanical and a combination of both. Baiting of the burrows was performed in the usual customary manner. The data was analyzed using SAS JMP one-way analysis of variance (ANOVA). Data collected specifically for the purpose of assessing accuracy of bait placement by three methods of application shows no significant differences among the methods. No significant differences were found at the  $p < .10$  level between the means of the number of locations bait is visible nor the percentage of burrows where bait is visible, nor the distance from the surface that bait may have been visible, nor the approximate number of grains of bait that is visible. Mechanical baiting is the most efficient and cost effective way to accomplish the task of managing the prairie dog complexes.

Prairie dogs occupy approximately 130,000 acres of rangeland in Kansas. Conservative estimates of prairie dog density are 25 per acre with the range given as 5-35 prairie dogs/ acre which in turn accounts for 30-50 6 inch burrows and mounds/acre. The stocking rate, defined simply as the number of acres necessary to feed an animal unit without overgrazing, ranges from 10-12 acres in western Kansas. To put this in terms of prairie dogs and cattle, 10 to 12 acres of rangeland are needed to support 1 steer **OR** 256 prairie dogs. Using the conservative estimate of 25 prairie dogs per acre, the 10 acres necessary to support the steer will contain about 250 prairie dogs. The land is capable of supporting **either** the steer **or** the prairie dogs, **not both**.



Mechanical baiting becomes a necessity considering a prairie dog mound or burrow may be found approximately every 900 to 1400 feet.

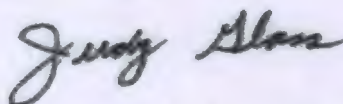
The market value of the livestock in the affected area is in excess of \$4,476,557,000 (incomplete data). A significant portion of the Kansas economy is related either directly or indirectly to livestock production. According to a six year study by Derner, Detling and Antolin, (2006) livestock weight gains decreased linearly depending on the amount of pasture occupied by prairie dogs.

By using a statistical method of regression analysis, they determined that each 10 percent of increased occupation resulted in a 2.1 percent reduction in weight gain. Weight gains decreased 5.5% when 20% of the pasture was colonized by prairie dogs and by 13.5% with 60% colonization. A pasture with a 20% prairie dog occupancy rate reduced the estimated value of livestock weight gain by \$14.95 per steer (March, 2006). A pasture with a 60% prairie dog occupancy rate reduced the estimated value of livestock weight gain by \$37.91 per steer (March, 2006). It is obvious that prairie dogs are a chronic condition hindering the maximization of rangeland production into livestock weight gain.

The reintroduction projects of the black-footed ferret in northwest Kansas rely on the ability to manage black-tailed prairie dog complexes. Mechanical baiting is the most efficient and cost effective way to accomplish the task of managing the prairie dog complexes and reestablishing the ferret so that the species could be removed from the state and federal endangered species list. The Manhattan, KS Regional office of the U.S. Fish and Wildlife Service and the Kansas Department of Wildlife, Parks and Tourism support this SLN. All other required determinations have been defined and the items required for EPA approval of the requested SLN are attached.

The Kansas Department of Agriculture has established the effective date of the SLN as October 1, 2011 and the assigned SLN number **KS-110003**. Please do not hesitate to contact me if you have any questions or concerns. I may be reached at 785-296-3454 or [judy.glass@kda.ks.gov](mailto:judy.glass@kda.ks.gov).

Sincerely,



Judy Glass  
Pesticide Registration Specialist

Attachments:

EPA Form 8570-25 Application for State Registration of a Pesticide to Meet a Special Local Need  
Liphatech Request for SLN letter  
Rozol Prairie Dog Bait 24(c) label  
Rozol Prairie Dog Bait Section 3 label  
Material Safety Data Sheet  
Final Cancellation Order for Rozol Prairie Dog Bait  
Rozol Prairie Dog Bait Acceptance Letter  
Revised Rozol Prairie Dog Bait Section 3 label  
KDA 24(c) incident report  
*Field Efficacy and Hazards of Rozol Bait for Controlling Black-Tailed Prairie Dogs (Cynomys ludovicianus) (Lee and Hygnstrom, 2007)*  
*Field Efficacy and Hazards of Rozol Bait for Controlling Black-Tailed Prairie Dogs (Cynomys ludovicianus) (Lee and Hygnstrom, 2007) statistical analysis*  
*Are Livestock Weight Gains Affected by Black-tailed Prairie Dogs? (Derner, Detling and Antolin, 2006)*  
2010 Kansas All Cattle Map (Page 42 Kansas Farm Facts 2010 USDA NASS)  
US Fish and Wildlife Service Species Report  
US Fish and Wildlife Service email communication  
Kansas Wildlife, Parks and Tourism Letter

Cc: John Hebert, US EPA  
Meredith Laws, US EPA  
Katie Howard, USEPA Region VII  
Tom Schmit, Liphatech, Inc.  
Charles Lee, Kansas State University  
Dan Mulhern, US Fish and Wildlife Service Manhattan, KS  
Keith Sexson, Kansas Department of Wildlife, Parks and Tourism  
Jim Riemann, Kansas Department of Agriculture  
Gary Meyer, Pesticide and Fertilizer Program Manager  
Shawn Hackett, Field Staff Supervisor  
Marie Blankenship, Case Review Officer  
Jerry Wilson, Environmental Scientist II



FEB 28 2011

**Kansas Department of Agriculture  
Pesticide and Fertilizer Program  
109 SW 9<sup>th</sup> St., 3<sup>rd</sup> floor  
Topeka, KS 66612  
Incident #11JW15996  
Page 1 of 3**

**Respondent:**  
**Wallace County Noxious Weed Department**  
**Attn: Bob Bolen**  
**PO Box #70**  
**Sharon Springs, KS 67758**

**Complainant:**  
**KDA**

### SUMMARY

On 02-23-11 I conducted a routine ag use/24C investigation with the Wallace County Noxious Weed Department. The application was to pasture located in the S ½ 30-15-42W in Wallace County and was for the control of prairie dogs. The bait used was Liphatech Rozol Prairie Dog Bait (EPA reg. #7173-286) which is a Restricted Use Product. Both the full use and supplemental 24C labels were present and in the possession of the applicator, Bob Bolen, during the application. No label or other violations were observed.

### NARRATIVE

**02-22-11:** On this date I contacted Bob Bolen who is the noxious weed director and prairie dog control supervisor for Wallace County. I indicated to him that I wished to conduct a routine ag use/24C investigation with the firm if the firm was going to conduct any prairie dog baiting with Rozol in the near future. He told me that weather permitting he intended to treat a pasture in the SW portion of Wallace County for prairie dogs the following day. I was to contact him early on the morning of 02-23-11 to verify whether or not this application was to be conducted and then we would plan accordingly.

**02-23-11:** At about 7:30am CST I contacted Mr. Bolen via his cell phone to inquire if he would be conducting any prairie dog baiting on this same date. He told me that he was planning to and arrangements were made to meet him at the junction of Hiway 27 and the Wallace-Greely county line at about 11:00am CST. This location is approximately fifteen (15) miles south of Sharon Springs, KS. He would then lead me to the pasture to be treated which was in extreme southwest Wallace County.

I met Mr. Bolen, whom I have met on several previous occasions, at the arranged time and location and I then following him to a pasture located in the S ½ 30-15-42W. Once we arrived there I presented Mr. Bolen with my KDA credentials and a Notice of Inspection (NOI) which detailed my reasons for being there. Mr. Bolen reviewed and then signed part I of the NOI. I then asked to see Mr. Bolen's commercial certification card. He provided this to me and he is commercially certified in Kansas with a certificate number of 3659 in subcategories 1C, 6, and 9A and the certificate is current through 12-31-13. He also showed me his Nebraska commercial certification card. This certification number was 082183 R in categories 7 and 14 and is current through 12-31-13.

.....

I then asked to see a copy of the supplemental 24C label for Rozol and Mr. Bolen furnished me a copy for my records while still maintaining a copy to keep in his possession during the baiting application. This copy is included in this case file as Exhibit #1. Mr. Bolen also had full use labels on full product containers in the firm's service vehicle. We reviewed the label as to the following use restrictions and directions: dates of permitted applications, minimum 6 inches below top of burrow bait application/placement, use of gloves when handling bait, application rate of ¼ cup (approximately 2 oz.) per active burrow, retrieving and properly



disposing of any bait that is spilled above ground or inside the burrow within 6 inches of the entrance, and the required follow-up for carcass searching and proper disposal of carcasses, if any are found.

Various photographs of the Rozol containers and label, service vehicle and application equipment, application site, and applications were taken. The bait boxes mounted on the ATV were already loaded when we arrived, but Mr. Bolen told me that he used gloves during all handling of the product including loading of bait boxes. He does not always use gloves when triggering the metering device which is done by pressing a button mounted on the handle bar of the ATV and there is no chance of bait contact during this operation. The bait boxes and application tubes were mounted on a 4 wheeled ATV. The bait is dispensed using a metering device already mentioned. The metering device was tested by collecting the amount of bait dispensed into a container while triggering the dispensing device sixteen (16) times which should dispense approximately 32 oz. of bait product. This was verified by photo #004.

Mr. Bolen told me that there was an approximately 20 acre active prairie dog colony in this 240 acre pasture. No livestock were present at the time of application as verified by photos #034-035. The prairie dog colony was located in the SW ¼ of this pasture. I observed approximately 200-250 burrows being baited, which was approximately half of the colony to be treated, and an extensive visual search of this application site by this investigator found no misapplied or spilled Rozol bait being applied above ground or less than 6" below the soil surface. The wind was from the N at approximately 12 mph during the application.

At this time I completed a Use Investigation document which I had Mr. Bolen review and sign. Mr. Bolen estimated he would use approximately 60 lbs. of Rozol during this entire application. I then interviewed Mr. Bolen about the observed portion of the application and the necessary follow-up inspections required by the 24C label as concerns carcass searches, disposal of any found carcasses, and collection and disposal of any Rozol bait which might be found on the surface during these subsequent inspections. I then summarized my personal observations and interview of Mr. Bolen into a prepared statement. I then presented this prepared statement to Mr. Bolen for his review and subsequent signature if he agreed to its content. Upon his review of the prepared statement he then signed this prepared statement. I then completed a Receipt for Samples document listing the documentary evidence I had received during this portion of the use investigation. I also indicated on the Receipt for Samples document that the firm's statement of service for this application would be mailed to my home office within five (5) working days of the last follow-up inspection to this site made by the firm. Mr. Bolen agreed to this and then signed the Receipt for Samples document.

Mr. Bolen then showed me a homemade hand baiting device a business associate of his had constructed to be used for treated small numbers of active prairie dog burrows with Rozol. This device consisted of a caulking gun and various plastic pipe and fittings which were used to trigger a metering device which would dispense approximately ¼ cup of Rozol bait down the prairie dog burrow. This end of this device could be physically down the prairie dog burrow to ensure that the bait was applied per all full use and 24C supplemental label directions. Mr. Bolen allowed me to photograph this device during a demonstration (see photos #028-030). This device was verified to be calibrated by this investigator as shown in photos #031-032. This investigator was quite impressed by this hand baiting tool.

At this time I gave Mr. Bolen the firm's copy of all documents completed during this portion of the use investigation. I then asked Mr. Bolen if he had any further questions or comments concerning this use investigation or any other pesticide related matter. Finding that he had none I thanked him for his time and information and concluded this portion of the use investigation.



# STATEMENT

FEB 23 2011

Case Number

1172115996

The following is a statement from Bob Boben who voluntarily gave this statement to Ferry Wilson who has identified himself/herself to me as an employee/representative of KDA. This statement was taken on 2-23-11 at job site.

During all mixing/loading + baiting applications of Liphatech Rose Prairie Dog Bait (EPA Reg # 7173-286) gloves were worn. The full use label + 24C label were on my possession during this application. The bait dispenser is calibrated to dispense 1/4 cup (2oz) per application cycle + this was verified by Mr. Wilson. The application rate I used was 1/4 cup per active burrow by mechanical baiting. I am aware that 3-15-11 is the last application date for this season unless the 24C label is otherwise amended, disapproved, or withdrawn. The Rose product was applied at least 6 inches down each active burrow. The application site is to pasture located on the SE 30-15-42W which has no livestock present. No bait was left on the soil surface at the time of application. I will return to the application site within 4 days after bait application + at 1-2 day intervals to collect + properly dispose of any bait or dead or dying prairie dogs found on the surface. Any carcasses found during the follow ups will be disposed of according to label directions. I am commercially certified in KS in subcategory 1C, 4, + 9A with certificate # 3659 which is current through 12-31-13. I am commercially certified in NE in subcategory 12-31-13. I am commercially certified in NE in subcategory 12-31-13. I am commercially certified in NE in subcategory 12-31-13.

I hereby affirm that I have read the foregoing statement and it is true to the best of my knowledge.

X Bob Boben Signature Wallace Co. Title 2-23-11 Date  
X 785-821-0042 Phone Number Wallace Co. Business Name  
X P.O. Box 70 Mailing Address Sharon Spgs, KS. 67758



FEB 28 2011

## KDA Digital Photo Description Sheet

Case No. 11JW15996

All photos in relationship to the investigation are included and have not been altered in anyway. Photos were taken on 02-23-11. All photos were taken by Jerry Wilson.

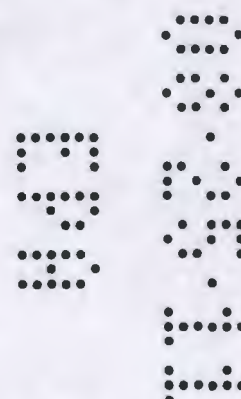
No.	Description	Facing
001	Photo of electronic piston device which measures out ¼ cup of the prairie dog bait per each time the device is triggered per a hand switch near the throttle of the ATV.	NA
002	Same as photo #001.	NA
003	Same as photos #001-002.	NA
004	The measured amount of Rozol dispensed after triggering the baiting device sixteen (16) times. Note the application rate is ¼ cup (approx. 2 oz.) per active burrow and the amount in the calibration cup is approximately 32 oz.	NA
005	Photo showing dual baiting boxes and baiting dispensing tubes mounted on the ATV. Note the tubes are only 2-4" off the surface of the ground.	NA
006	Photo of Liphatech Rozol Prairie Dog Bait (EPA reg. #7173-286) section 3 label affixed to the bait container.	NA
007	Close-up of photo #007.	NA
008	Photo of markings on Wallace County Noxious Weed Department service vehicle.	NA
009	Photo showing foam markings denoting where applications had been made.	S
010	Close-up of the foam markings.	S
011	Photo of an active prairie dog burrow that had just been baited with Rozol. Note the foam, ATV tracks, and no Rozol above ground.	S
012	Photo of same burrow as shown in photo #011. Note a small amount of Rozol shown at least 6" down the burrow. The rest of the Rozol went further down the burrow.	NA
013	Close-up of Rozol bait as shown in photos #011-012.	NA
014	Photo of a second active representative prairie dog burrow treated with Rozol bait. Note there is no above ground application or spillage.	NA
015	Photo of the Rozol bait applied at least 6" down the burrow of the burrow shown in photo #014.	NA
016	Photo showing foam marker dispensing marking foam denoting where applications have been made and also the height of the dispensing tubes in relation to the ground.	NA
017	Photo of Bob Bolen just after he has treated another active prairie dog burrow.	NA
018	Photo of another active prairie dog burrow that had just been baited. Note no Rozol bait spilled or misapplied above ground. Also note the prairie dog dropping to the right of the burrow showing that it is an active burrow.	NA
019	Close-up of prairie dog dropping shown in photo #018.	NA



RECEIVED

FEB 28 2011

No.	Description	Facing
020	Photo of Mr. Bolen baiting another active prairie dog burrow.	NA
021	Close-up photo of Mr. Bolen treating another active prairie dog burrow. Note no misapplied Rozol bait.	NA
022	Same as photo #022.	NA
023	Same as photos #022-023.	NA
024	Same as photos #022-024.	NA
025	Same as photos #022-025.	NA
026	Another photo of areas of the active prairie dog colony which had been baited.	N-NE
027	Another photo of Mr. Bolen and application equipment.	N-NE
028	Photo of Mr. Bolen demonstrating a homemade hand baiting device (no application being conducted). The device is made of place pipe, caulking gun, and a trigger activated plunger which dispenses the Rozol bait in a calibrated amount.	N
029	Close-up of hand baiting device as shown in photo #028.	NA
030	Same as photo #029.	NA
031	Measured amount of Rozol bait which was dispensed when dispensing sixteen (16) doses of Rozol using the hand baiter. Note the total amount is again very close to 32 oz.	NA
032	Same as photo #031.	NA
033	Photo showing end of dispensing tube with measures 4" above the ground surface.	NA
034	Photo of pasture located in the S ½ 30-15-42W being baited for prairie dogs. Note there are no livestock present.	E
035	Same as photo #034.	NE





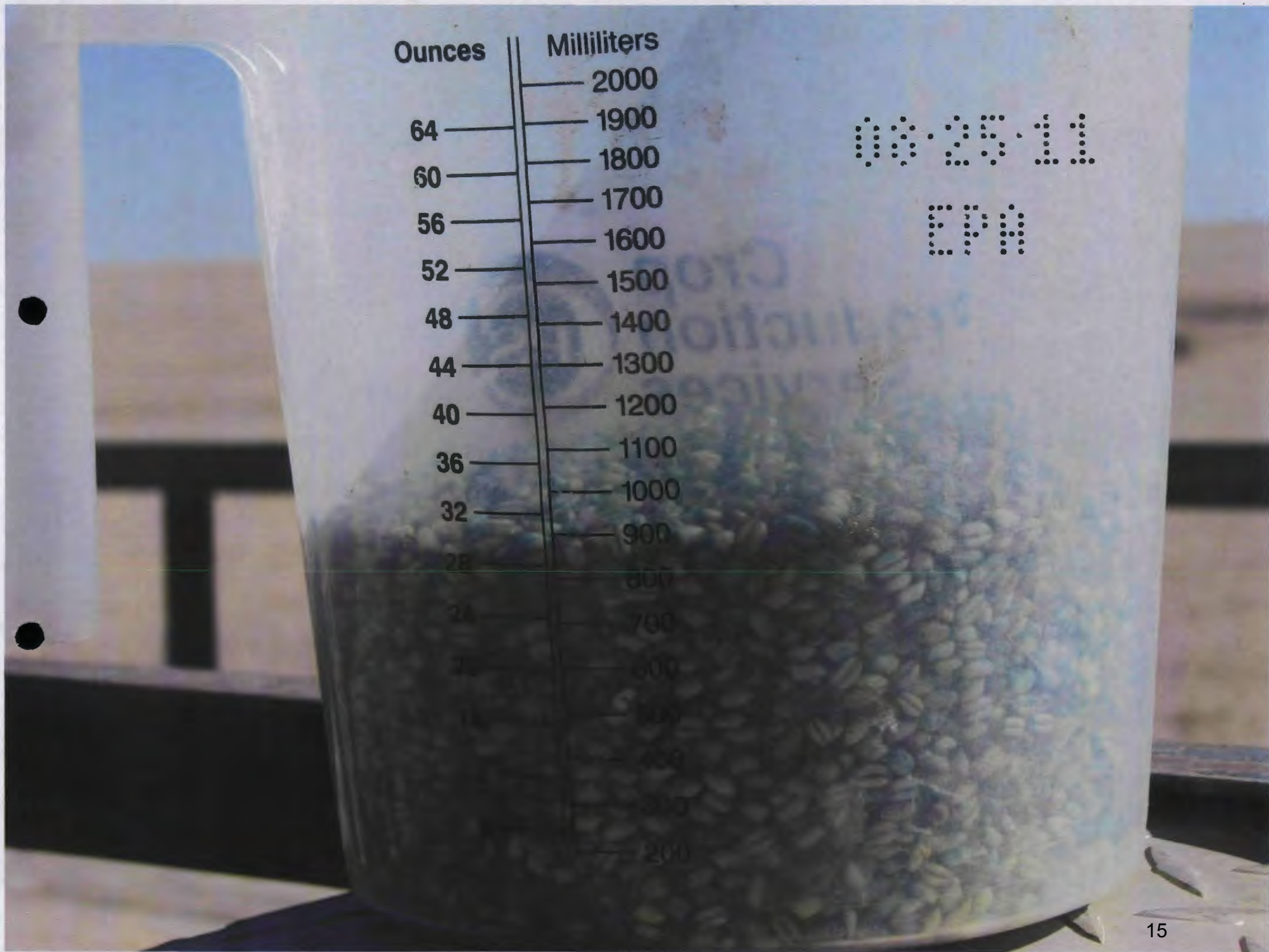












Ounces

Milliliters

64

60

56

52

48

44

40

36

32

28

24

20

16

12

8

4

0

2000

1900

1800

1700

1600

1500

1400

1300

1200

1100

1000

900

800

700

600

500

400

300

200

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**RESTRICTED USE PESTICIDE**  
DO NOT RELEASE TO ENVIRONMENT OR ANIMALS

... (faint text) ...





















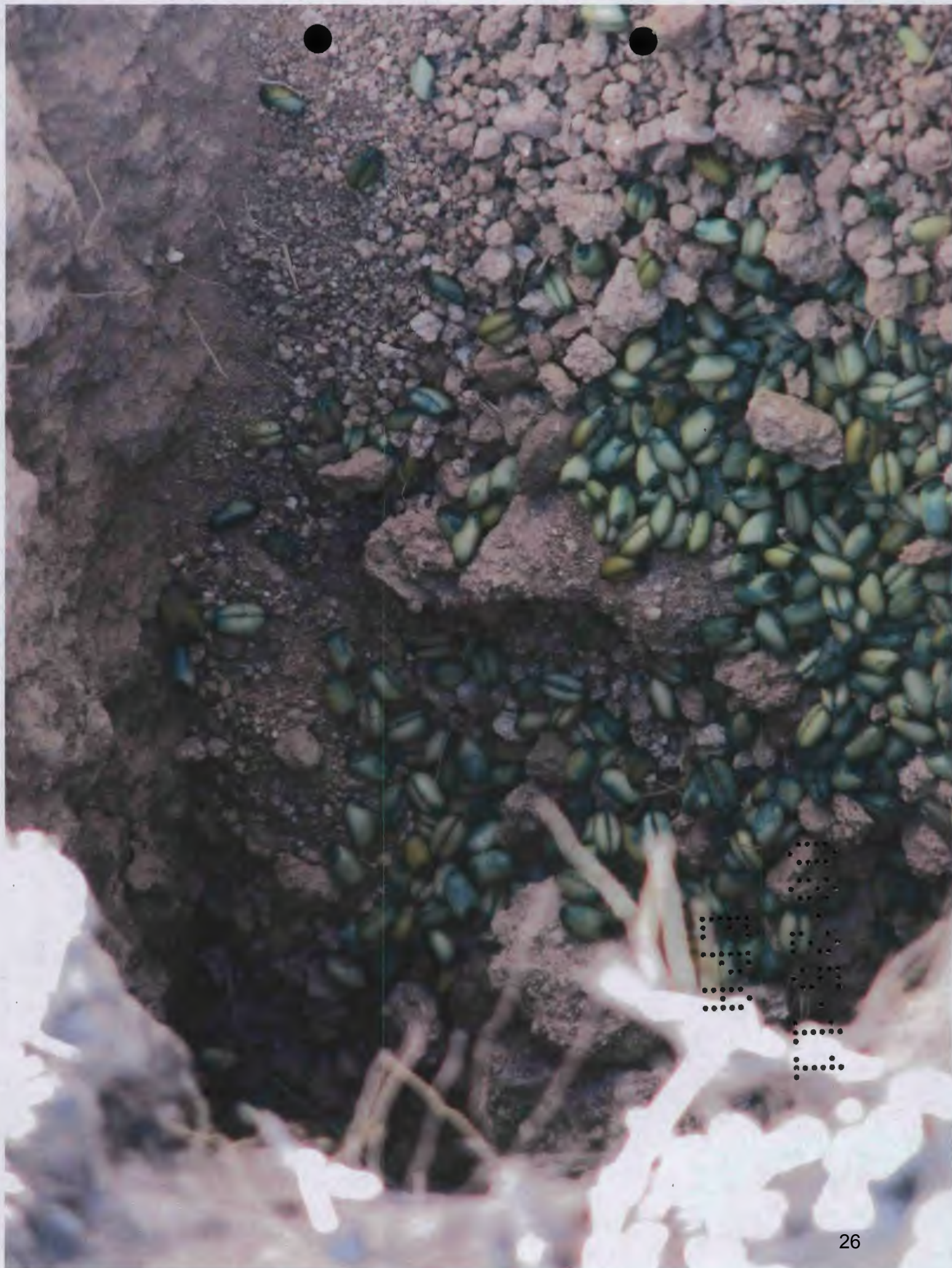




















043

11.52.00











08-25-11

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8.43

11.05.00



08.05.12

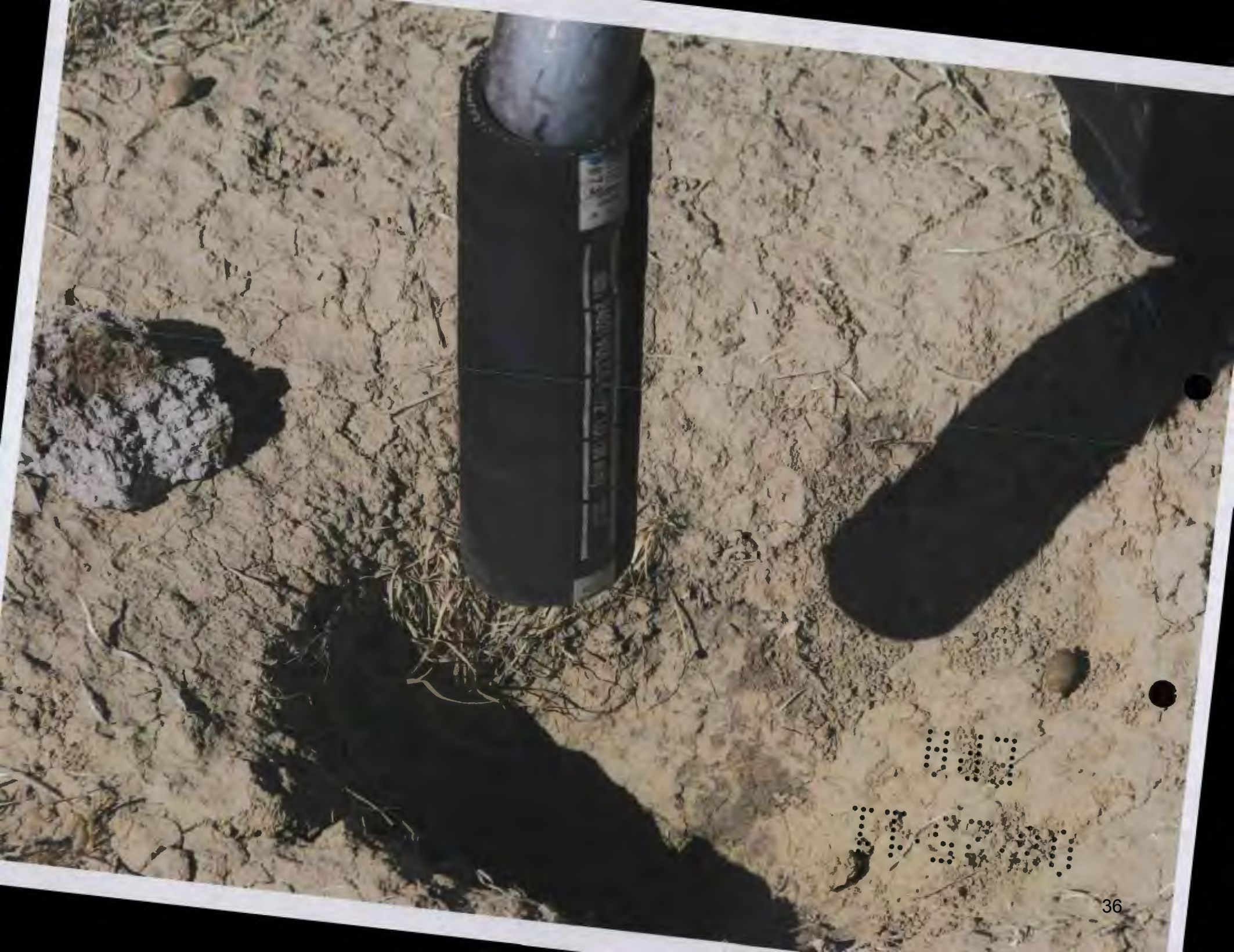
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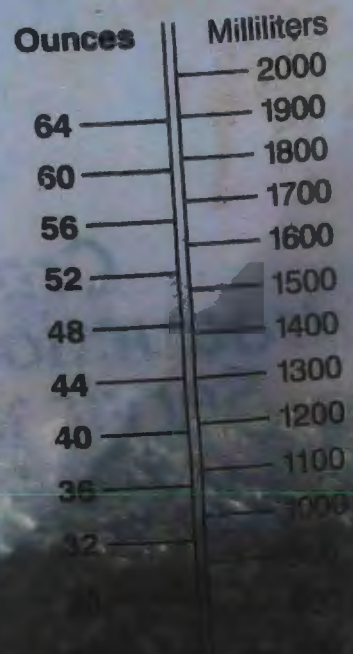
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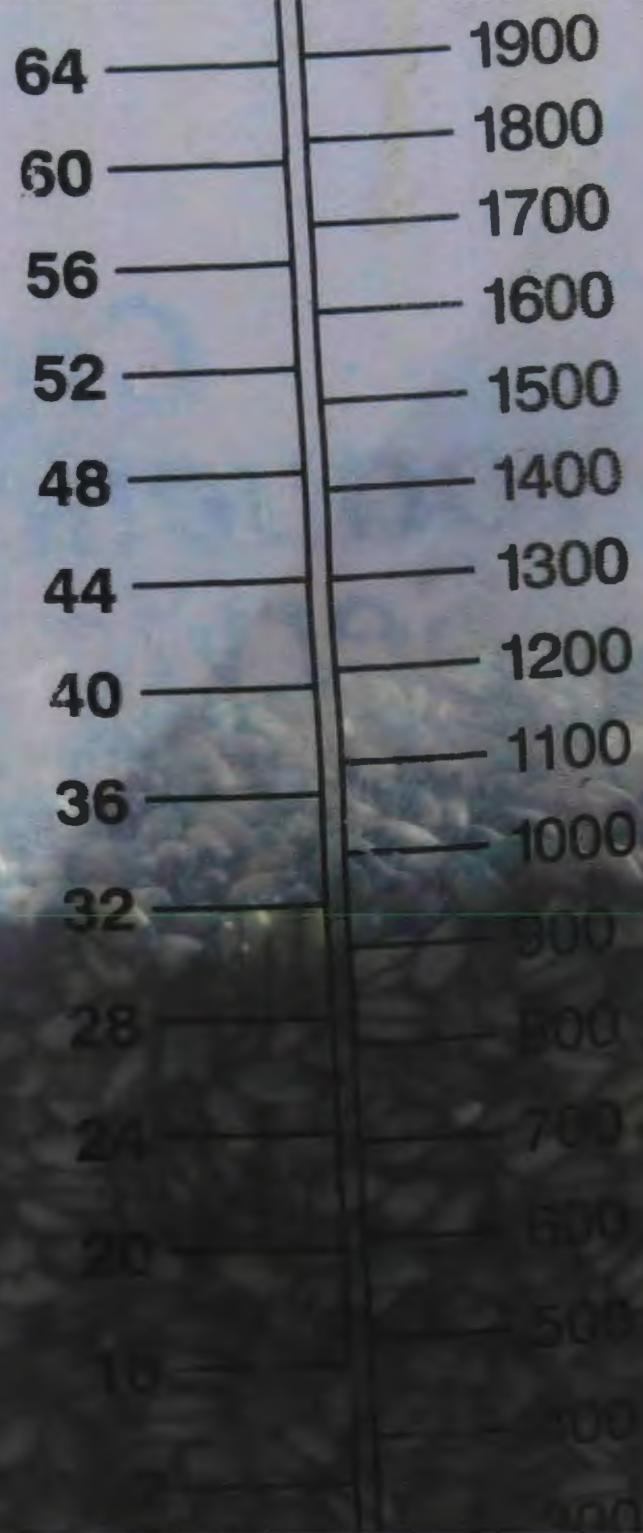
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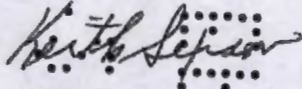
CPA



Based on this analysis we conclude that mechanical baiting would not provide a significantly increased risk to nontarget wildlife compared to hand baiting. When the bait is placed 6 inches down the burrow as required by the label, wildlife risks are minimized.

If you have questions, just give me a call. It should be noted that KDWPT

Sincerely,



Keith Sexson  
Assistant Secretary  
Kansas Department of Wildlife, Parks and Tourism

Enc.:  
Worksheet and summary table



# Summary of Field Efficacy Data of Rozol Bait For Controlling Black-Tailed Prairie Dogs

Site	Site	Day	Number of Locations	Number of Locations Visible			Approximate Number of			Dispense Method Used:		
			Bait Visible (Out of 50 Burrows)	At Surface	Bait Is:		Grains Visible:			1=Manual	2=Mechanical	3=Both
					0-6"	>6"	<25	25-100	>100			
Trial 1: Sallee	1	1	24	1	0	23	12	6	6			1
Trial 1: Sallee	1	2	4	0	0	4	1	3	0			1
Trial 1: Sallee	1	3	2	0	0	2	0	2	0			1
Trial 1: Sallee	1	4	3	1	0	2	1	1	1			1
Trial 1: Sallee	1	5	2	0	1	1	1	0	1			1
Trial 1: Sallee	1	6	3	2	0	1	2	0	1			1
Trial 1: Sallee	1	7	1	1	0	0	1	0	0			1
Trial 1: Hogan	2	1	14	3	3	8	10	2	2			1
Trial 1: Hogan	2	2	10	1	5	4	6	4	0			1
Trial 1: Hogan	2	3	4	1	0	3	4	0	0			1
Trial 1: Hogan	2	4	3	1	0	2	3	0	0			1
Trial 1: Hogan	2	5	2	0	0	2	2	0	0			1
Trial 1: Hogan	2	6	2	1	0	1	2	0	0			1
Trial 1: Hogan	2	7	0	0	0	0	0	0	0			1
Trial 2: South	3	1	34	2	20	12	9	10	15			3
Trial 2: South	3	2	31	2	22	7	15	7	9			3
Trial 2: South	3	3	29	2	23	4	13	9	7			3
Trial 2: South	3	4	20	0	17	3	18	2	0			3
Trial 2: South	3	5	18	0	15	3	16	2	0			3
Trial 2: South	3	6	12	0	8	4	12	0	0			3
Trial 2: South	3	7	10	0	8	2	10	0	0			3
Trial 2: Cemetery	4	1	32	2	22	8	6	8	18			2
Trial 2: Cemetery	4	2	26	1	19	6	6	6	13			2
Trial 2: Cemetery	4	3	21	0	18	3	6	4	11			2
Trial 2: Cemetery	4	4	16	1	11	4	9	5	2			2
Trial 2: Cemetery	4	5	15	0	11	4	9	4	2			2
Trial 2: Cemetery	4	6	13	0	11	2	8	5	0			2
Trial 2: Cemetery	4	7	12	0	10	2	7	5	0			2
Trial 2: Lashley	5	1	30	1	2	27	20	5	5			1
Trial 2: Lashley	5	2	12	0	4	8	10	2	0			1
Trial 2: Lashley	5	3	5	0	1	4	4	1	0			1
Trial 2: Lashley	5	4	3	0	0	3	3	0	0			1
Trial 2: Lashley	5	5	3	0	0	3	3	0	0			1
Trial 2: Lashley	5	6	2	0	1	1	2	0	0			1
Trial 2: Lashley	5	7	2	0	1	1	2	0	0			1
Trial 2: Falman	6	1	27	2	12	13	13	6	8			3
Trial 2: Falman	6	2	27	2	14	11	11	8	8			3
Trial 2: Falman	6	3	12	0	11	1	4	6	2			3
Trial 2: Falman	6	4	5	0	5	0	5	0	0			3
Trial 2: Falman	6	5	4	0	3	1	4	0	0			3
Trial 2: Falman	6	6	4	0	4	0	4	0	0			3
Trial 2: Falman	6	7	3	0	3	0	3	0	0			3
Trial 3: Wiese East	7	1	25	0	20	5	21	4	0			3
Trial 3: Wiese East	7	2	18	0	15	3	14	4	0			3
Trial 3: Wiese East	7	3	9	0	6	1	7	0	0			3
Trial 3: Wiese East	7	4	5	0	3	2	4	1	0			3
Trial 3: Wiese East	7	5	4	0	0	1	1	0	0			3
Trial 3: Wiese East	7	6	3	0	1	2	2	1	0			3
Trial 3: Wiese East	7	7	2	0	1	1	1	1	0			3
Trial 3: Wiese West	8	1	35	0	24	11	25	10	0			1
Trial 3: Wiese West	8	2	31	0	20	11	21	10	0			1
Trial 3: Wiese West	8	3	31	0	20	11	21	9	0			1
Trial 3: Wiese West	8	4	10	0	7	3	7	3	0			1
Trial 3: Wiese West	8	5	5	0	5	0	3	2	0			1
Trial 3: Wiese West	8	6	2	0	2	0	1	1	0			1
Trial 3: Wiese West	8	7	2	0	2	0	1	1	0			1



	Trial 3: Sowers	9	1	18	0	17	1	15	3	0	2
	Trial 3: Sowers	9	2	14	1	12	1	13	1	0	2
	Trial 3: Sowers	9	3	1	0	1	0	0	1	0	2
	Trial 3: Sowers	9	4	1	0	1	0	1	0	0	2
	Trial 3: Sowers	9	5	1	0	1	0	1	0	0	2
	Trial 3: Sowers	9	6	1	0	1	0	1	0	0	2
	Trial 3: Sowers	9	7	0	0	0	0	0	0	0	2
	Trial 3: Magnani	10	1	31	0	25	6	16	13	2	2
	Trial 3: Magnani	10	2	27	0	22	5	13	12	2	2
	Trial 3: Magnani	10	3	14	0	13	1	4	8	2	2
	Trial 3: Magnani	10	4	10	0	9	1	3	7	0	2
	Trial 3: Magnani	10	5	7	0	7	0	2	5	0	2
	Trial 3: Magnani	10	6	5	0	5	0	3	2	0	2
	Trial 3: Magnani	10	7	3	0	3	0	2	1	0	2



Locations Bait Visible			
Day	Application		Prob>F
1		Mean	0.8852
	Both	28.6667	
	Hand	25.7500	
	Machine	27.0000	
2		Mean	0.317
	Both	25.3333	
	Hand	14.2500	
	Machine	22.3333	
3		Mean	0.7951
	Both	16.6667	
	Hand	10.5000	
	Machine	12.0000	
4		Mean	0.552
	Both	10.0000	
	Hand	4.7500	
	Machine	9.0000	
5		Mean	0.4231
	Both	8.66667	
	Hand	3.00000	
	Machine	7.66667	
6		Mean	0.3759
	Both	6.33333	
	Hand	2.25000	
	Machine	6.33333	
7		Mean	0.4167
	Both	5.00000	
	Hand	1.25000	
	Machine	5.00000	
Pooled			
Days 1 thru 7		Mean	0.1740
	Both	14.3810	
	Hand	8.8214	
	Machine	12.7619	

Distance to Balt (surface)			
Day	Application		Prob > F
1		Mean	0.7614
	Both	1.33333	
	Hand	1.25000	
	Machine	0.66667	
2		Mean	0.2454
	Both	1.3333	
	Hand	0.2500	
	Machine	0.6667	
3		Mean	0.5283
	Both	0.666667	
	Hand	0.250000	
	Machine	0.000000	
4		Mean	0.4454
	Both	0.000000	
	Hand	0.500000	
	Machine	0.333333	
5		Mean	-----
	Both	0.00000	
	Hand	0.00000	
	Machine	0.00000	
6		Mean	0.2471
	Both	0.000000	
	Hand	0.750000	
	Machine	0.000000	
7		Mean	0.5283
	Both	0.000000	
	Hand	0.250000	
	Machine	0.000000	
Pooled			
Days 1 thru 7		Mean	0.4842
	Both	0.476190	
	Hand	0.464286	
	Machine	0.238095	

Distance to Balt (0-6")			
Day	Application	Mean	Prob > F
1	Both	17.3333	0.1219
	Hand	7.2500	
	Machine	21.3333	
2	Both	17.0000	0.1379
	Hand	7.2500	
	Machine	17.6667	
3	Both	13.3333	0.5262
	Hand	5.2500	
	Machine	10.6667	
4	Both	8.3333	0.2946
	Hand	1.7500	
	Machine	7.0000	
5	Both	6.0000	0.4323
	Hand	1.5000	
	Machine	6.3333	
6	Both	4.3333	0.1976
	Hand	0.7500	
	Machine	5.6667	
7	Both	4.0000	0.3533
	Hand	0.7500	
	Machine	4.3333	
Pooled			
Days 1 thru 7	Both	10.0476	0.0014
	Hand	3.5000	
	Machine	10.4286	



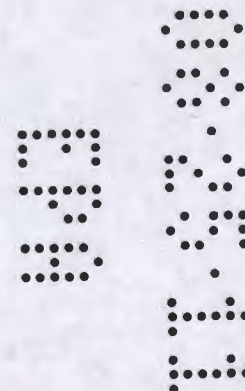
Distance to Bait (> 6")			
Day	Application	Mean	Prob>F
1		Mean	0.1186
	Both	10.0000	
	Hand	17.2500	
	Machine	5.0000	
2		Mean	0.5078
	Both	7.00000	
	Hand	6.75000	
	Machine	4.00000	
3		Mean	0.2720
	Both	2.00000	
	Hand	5.00000	
	Machine	1.33333	
4		Mean	0.6804
	Both	1.66667	
	Hand	2.50000	
	Machine	1.66667	
5		Mean	0.9688
	Both	1.66667	
	Hand	1.50000	
	Machine	1.33333	
6		Mean	0.3938
	Both	2.00000	
	Hand	0.75000	
	Machine	0.66667	
7		Mean	0.5577
	Both	1.00000	
	Hand	0.25000	
	Machine	0.66667	
POOLED			
Days 1 thru 7		Mean	0.1592
	Both	3.61905	
	Hand	4.85714	
	Machine	2.09524	

Amount of Bait Visible (<25 grains)			
Day	Application		Prob>F
1		Mean	0.6713
	Both	14.3333	
	Hand	16.7500	
	Machine	12.3333	
2		Mean	0.7178
	Both	13.3333	
	Hand	9.5000	
	Machine	10.6667	
3		Mean	0.6734
	Both	8.00000	
	Hand	7.25000	
	Machine	3.33333	
4		Mean	0.3755
	Both	9.00000	
	Hand	3.50000	
	Machine	4.33333	
5		Mean	0.4805
	Both	7.00000	
	Hand	2.25000	
	Machine	4.00000	
6		Mean	0.3249
	Both	6.00000	
	Hand	1.75000	
	Machine	4.00000	
7		Mean	0.3760
	Both	4.66667	
	Hand	1.00000	
	Machine	3.00000	
POOLED			
Days 1 thru 7		Mean	0.2101
	Both	8.90476	
	Hand	6.00000	
	Machine	5.95238	

Amount of Bait Visible (25-100 grains)			
Day	Application	Mean	Prob>F
1		Mean	0.7501
	Both	6.66667	
	Hand	5.75000	
	Machine	8.00000	
2		Mean	0.8273
	Both	6.33333	
	Hand	4.75000	
	Machine	6.33333	
3		Mean	0.8079
	Both	5.00000	
	Hand	3.00000	
	Machine	4.33333	
4		Mean	0.2129
	Both	1.00000	
	Hand	1.00000	
	Machine	4.00000	
5		Mean	0.1800
	Both	0.66667	
	Hand	0.50000	
	Machine	3.00000	
6		Mean	0.1824
	Both	0.33333	
	Hand	0.25000	
	Machine	2.33333	
7		Mean	0.3072
	Both	0.33333	
	Hand	0.25000	
	Machine	2.00000	
Pooled			
Days 1 thru 7		Mean	0.1144
	Both	2.90476	
	Hand	2.21429	
	Machine	4.28571	



Amount of Bait Visible (> 100 grains)			
Day	Condition	Mean	
1	Both	7.66667	0.6809
	Hand	3.25000	
	Machine	6.66667	
2	Both	5.66667	0.2597
	Hand	0.00000	
	Machine	5.00000	
3	Both	3.00000	0.3331
	Hand	0.00000	
	Machine	4.33333	
4	Both	0.000000	0.5283
	Hand	0.250000	
	Machine	0.666667	
5	Both	0.000000	0.5283
	Hand	0.250000	
	Machine	0.666667	
6	Both	0.000000	0.5283
	Hand	0.250000	
	Machine	0.000000	
7	Both	0.00000	—
	Hand	0.00000	
	Machine	0.00000	
Pooled			
Days 1 thru 7	Both	2.33333	0.1397
	Hand	0.57143	
	Machine	2.47619	







# Species Reports

Environmental Conservation Online System

## Listings and Occurrences for Kansas

### Notes:

- This report shows the listed species associated in some way with this state.
- This list does not include experimental populations and similarity of appearance listings.
- This list includes non-nesting sea turtles and whales in State/Territory coastal waters.
- This list includes species or populations under the sole jurisdiction of the National Marine Fisheries Service.
- Click on the highlighted scientific names below to view a Species Profile for each listing.

### Summary of Animals listings

#### Animal species listed in this state and that occur in this state (9 species)

Status ( <a href="#">javascript:launch('/tess_public/html/db-status.html');</a> )	Species
E	Bat, gray ( <a href="#">Myotis grisescens</a> ( <a href="#">/speciesProfile/profile/speciesProfile.action?scode=A04J</a> ))
E	Beetle, American burying ( <a href="#">Nicrophorus americanus</a> ( <a href="#">/speciesProfile/profile/speciesProfile.action?scode=I028</a> ))
E	Crane, whooping except where EXPN ( <a href="#">Grus americana</a> ( <a href="#">/speciesProfile/profile/speciesProfile.action?scode=B003</a> ))
T	Madtom, Neosho ( <a href="#">Noturus placidus</a> ( <a href="#">/speciesProfile/profile/speciesProfile.action?scode=E03S</a> ))
T	Plover, piping except Great Lakes watershed ( <a href="#">Charadrius melodus</a> ( <a href="#">/speciesProfile/profile/speciesProfile.action?scode=B079</a> ))
T	Shiner, Arkansas River Arkansas R. Basin ( <a href="#">Notropis girardi</a> ( <a href="#">/speciesProfile/profile/speciesProfile.action?scode=E05X</a> ))
E	Shiner, Topeka ( <a href="#">Notropis topeka</a> (=tristis) ( <a href="#">/speciesProfile/profile/speciesProfile.action?scode=E07R</a> ))
E	Sturgeon, pallid ( <a href="#">Scaphirhynchus albus</a> ( <a href="#">/speciesProfile/profile/speciesProfile.action?scode=E06X</a> ))
E	Tern, least interior pop. ( <a href="#">Sterna antillarum</a> ( <a href="#">/speciesProfile/profile/speciesProfile.action?scode=B07N</a> ))

#### Animal species listed in this state that do not occur in this state (2 species)



**Status** ([javascript:launch  
\(/tess\\_public/html/db-  
status.html'\);\)](#))

## Species

E

Bat, Indiana (*Myotis sodalis*)

([/speciesProfile/profile/speciesProfile.action?scode=A000](#))

Wolf, gray Lower 48 States, except MN and where EXPN.  
Mexico. (*Canis lupus*)

([/speciesProfile/profile/speciesProfile.action?scode=A00D](#))

**Animal listed species occurring in this state that are not listed in this state (2 species)**

**Status** ([javascript:launch  
\(/tess\\_public/html/db-  
status.html'\);\)](#))

## Species

E

Curlew, Eskimo (*Numenius borealis*)

([/speciesProfile/profile/speciesProfile.action?scode=B01A](#))

Ferret, black-footed entire population, except where EXPN

(*Mustela nigripes* ([/speciesProfile/profile/speciesProfile.action?scode=A004](#)))

## Summary of Plant listings

**Plant species listed in this state and that occur in this state (2 species)**

**Status** ([javascript:launch  
\(/tess\\_public/html/db-  
status.html'\);\)](#))

## Species

T

Milkweed, Mead's (*Asclepias meadii*)

([/speciesProfile/profile/speciesProfile.action?scode=Q1T6](#))

T

Orchid, western prairie fringed (*Platanthera praecleara*)

([/speciesProfile/profile/speciesProfile.action?scode=Q2YD](#))

**Plant species listed in this state that do not occur in this state (1 species)**

**Status** ([javascript:launch  
\(/tess\\_public/html/db-  
status.html'\);\)](#))

## Species

E

Clover, running buffalo (*Trifolium stoloniferum*)

([/speciesProfile/profile/speciesProfile.action?scode=Q2RE](#))

Last updated: May 12, 2011

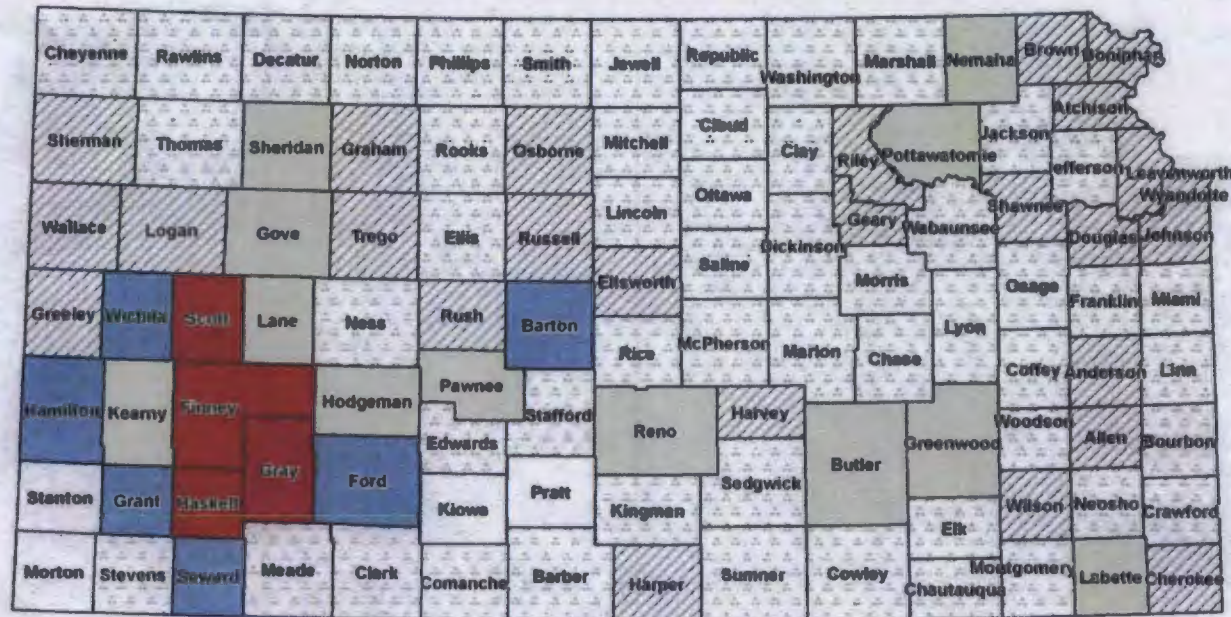
[ECOS Home \(/ecos/IndexPublic.do\)](#) | [Contact Us \(/ecos/helpdesk.do?version=TESS\\_PUBLIC-1 0 109\)](#)



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09

# 2010 KANSAS ALL CATTLE



## Number of Head

Unpublished < 30,000 30,001 - 60,000 60,001 - 100,000 100,001 - 200,000 200,001 +



# Are livestock weight gains affected by black-tailed prairie dogs?

Justin D Derner<sup>1\*</sup>, James K Detling<sup>2</sup>, and Michael F Antolin<sup>3</sup>

There is little empirical data addressing the important and controversial question of how prairie dogs (*Cynomys* spp) affect livestock weight gains in western rangelands. This is particularly relevant in the shortgrass steppe, where the area occupied by prairie dogs has increased substantially in recent years, exacerbating conflicts with livestock producers. In our 6-year study, livestock weight gains decreased linearly, but at a rate slower than the rate of colonization by black-tailed prairie dogs (*Cynomys ludovicianus*). This decrease in livestock gains resulted in lower estimated economic returns. For example, pastures with 20% of area occupied by prairie dogs reduced the estimated value of livestock weight gain by \$14.95 per steer (from \$273.18 to \$258.23 per steer) and by \$2.23 ha<sup>-1</sup> (from \$40.81 to \$38.58 ha<sup>-1</sup>). In pastures with 60% occupancy, reduced livestock weight gain lowered estimated value by \$37.91 per steer and \$5.58 ha<sup>-1</sup>, or about 14%.

Front Ecol Environ 2006; 4(9): 459–464

Prairie dogs (*Cynomys* spp) are colonial, herbivorous, burrowing rodents (Figure 1) that have a relatively high dietary overlap with both native and domestic grazers (Detling 2006). Because they have long been viewed as competitors with livestock for forage, prairie dogs have been the target of large-scale eradication campaigns for over a century. This, together with loss of habitat and the introduction of sylvatic plague into the western portion of their range, has resulted in as much as a 98% reduction in the area of North American grasslands that they occupy (Forrest 2005).

However, recognizing that prairie dog habitat contributes to the maintenance of grassland species diversity and is critical for preservation of the endangered black-footed ferret (*Mustela nigripes*), interest in conserving prairie dogs has increased (Miller *et al.* 1990, 1994; Wuerthner 1997; Kotliar *et al.* 1999). As a result, there is now a heated debate between conservation biologists and livestock producers as to the merits of allowing prairie dog populations to expand on western rangelands (see Vermeire *et al.* 2004; Forrest 2005). Unfortunately, there is scant scientific evidence pertaining to the question of primary concern to livestock producers: to what extent are livestock weight gains affected by the presence and abundance of prairie dogs? The lack of such information has fundamental economic consequences for managers of both public and private lands.

Prairie dogs may potentially reduce carrying capacity of rangelands for large herbivores by consuming forage, clipping plants to enhance predator detection, building soil mounds around their burrow entrances, and changing plant

species composition (Vermeire *et al.* 2004; Detling 2006). Studies have shown that summer weight gains of yearling steers in Oklahoma mixed-grass prairie did not differ significantly in pastures with and without prairie dogs (O'Meilia *et al.* 1982), and abundance of prairie dogs was greater with heavy cattle grazing compared to areas recently excluded from grazing (Uresk *et al.* 1982). However, several limitations in these studies have been identified (see Vermeire *et al.* 2004). Because there are few other empirical field studies on the subject (Vermeire *et al.* 2004; Detling 2006), additional research is needed, controlling for prairie dog presence in different types of grasslands, to understand how prairie dogs affect livestock performance.

Despite relatively frequent, plague-induced local extinctions, particularly following El Niño events, both the number of black-tailed prairie dog (*Cynomys ludovicianus*) colonies and the area they occupy have been increasing on the Pawnee National Grasslands (PNG) in northern Colorado since 1981 (Stapp *et al.* 2004; Antolin *et al.* 2006). In the mid-1990s, several black-tailed prairie dog colonies established naturally in pastures of the USDA-ARS Central Plains Experimental Range (CPER), a shortgrass steppe grazing research site adjacent to PNG (Figure 2). The objectives of the research reported here were to (1) measure the rate of expansion of these prairie dog colonies on CPER pastures, (2) evaluate the effect of percentage of pastures newly colonized by prairie dogs on cattle weight gains, and (3) estimate the impact that prairie dogs may have on the economic returns of livestock grazing in shortgrass steppe.

## Methods

Our CPER study site (40°49'N, 107°47'W), approximately 60 km northeast of Fort Collins, Colorado, has a mean annual temperature of 8.6°C and mean annual

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Figure 1. Black-tailed prairie dogs (*C. ludovicianus*) and cattle at the USDA-ARS CPER located near Nunn, CO.

aboveground production of  $1000 \text{ kg ha}^{-1}$  (Lauenroth and Sala 1992). Vegetation is dominated by blue grama grass (*Bouteloua gracilis*; Milchunas et al. 1989; Derner et al. 2006), and soils are mostly sandy loams (Ustollic

( $X_i$ ) from visual counts ( $Y_i$ ) by the formula  $X_i = (Y_i - 3.04)/0.4$  (Severson and Plumb 1998).

Between 1999 and 2004, livestock weight gains were compared between two colonized pastures (5W and 22W) and two pastures without prairie dog colonies. Comparisons with occupied pastures 27–34 and 29–30 were not carried out because uncolonized pastures of the same size and with the same breed, sex, and age of cattle were not available. Each pasture to be compared had (1) yearling steers with initial entry weights of  $263 \pm 37$  (mean  $\pm$  1SD) kg per animal, (2) the same area (129.5 ha), (3) moderate stocking density of 1 yearling per 6.5 ha (Bement 1969; Hart and Ashby 1998), and (4) a 5-month grazing season (mid-May to mid-October). Drought dictated earlier removal in 2000 (September 6) and 2002 (August 9). Over the 6-year study, seven comparisons met all criteria (Table 1). We did not measure vegetation composition or production. However, in the nearby shortgrass steppe on the PNG, a comparison of vegetation between similar-aged prairie dog colonies and adjacent uncolonized areas showed that peak biomass of grasses was only 50% as great on prairie dog colonies, while biomass of forbs was about 50% greater (Hartley and Detling unpublished). Nevertheless, cattle have been observed on prairie dog colonies at CPER and PNG approximately in proportion to their availability, and foraging was their predominant activity on

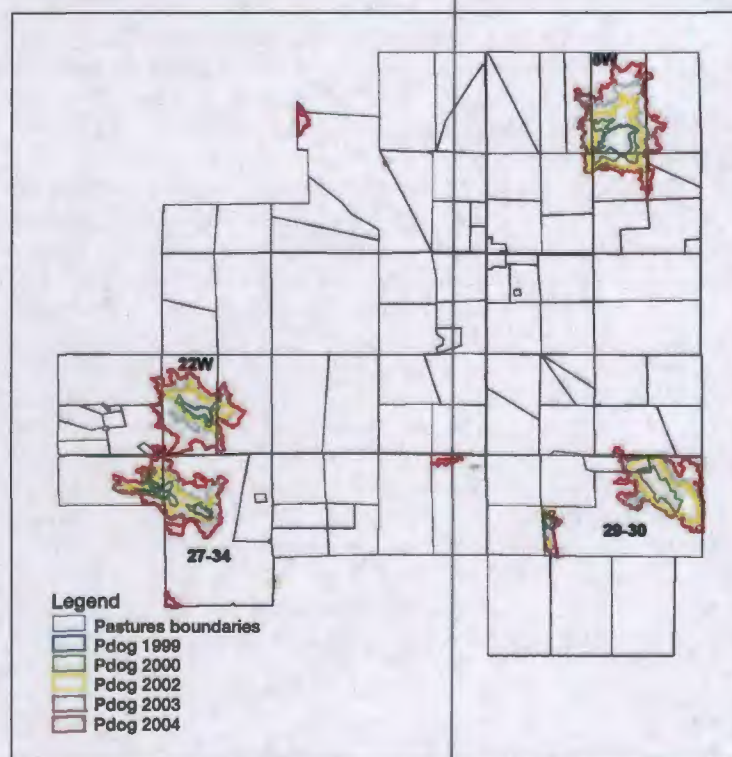


Figure 2. Areas of prairie dog colonies from 1999 to 2004 at the USDA-ARS CPER.



colonies during peak grazing hours (Guenther and Detling 2003).

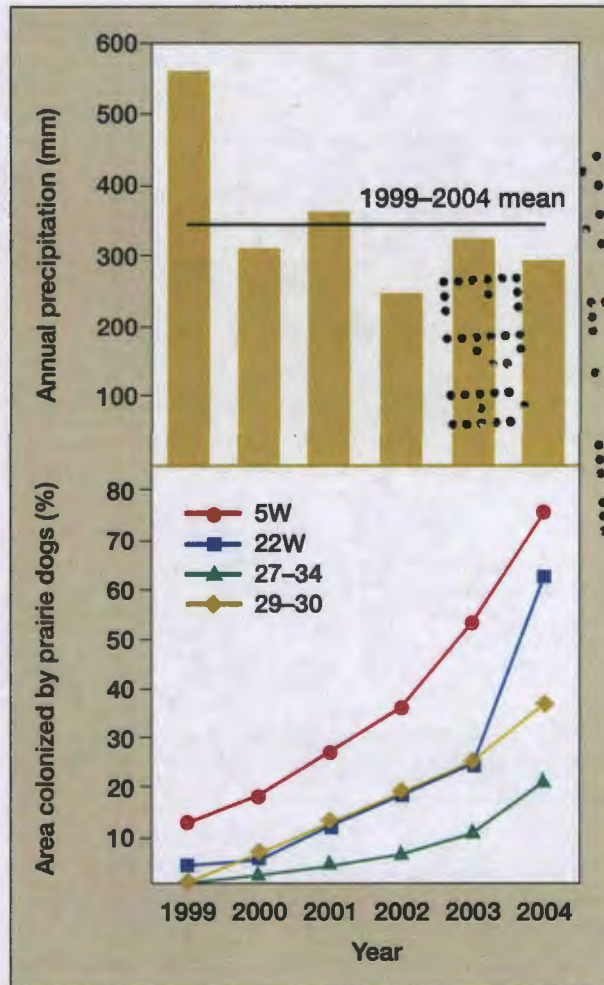
Seasonal weight gains (kg per steer) were determined by weighing individual animals at the beginning and end of each grazing season. T-tests were used to compare seasonal animal weight gains in each of the seven pasture combinations. Beef production (kg gain  $\text{ha}^{-1}$ ) was determined by summing individual animal weight gains in each pasture and dividing by the area of the pasture. Relative gain (%) was calculated by dividing beef production in pastures with prairie dogs by production in pastures without prairie dogs. Linear regression analysis (SAS 9.1) was used to determine the relationship between relative livestock weight gain and percentage of pasture occupied by prairie dogs.

The economic impacts of prairie dogs were estimated on a per steer and a per unit area basis. The impact of colonization per steer was calculated using initial starting weights of 263 kg per steer and adding average seasonal gains of 122.5 kg per steer (see Results) in uncolonized pastures to obtain an end-of-season weight of 385.5 kg per steer. The current price of yearling steers in this weight range (375–398 kg in Colorado, [www.ams.usda.gov/mnreports/gl\\_ls165.txt](http://www.ams.usda.gov/mnreports/gl_ls165.txt), accessed 4 March 2006) is \$2.23  $\text{kg}^{-1}$ . This results in a livestock weight gain value of \$273.18 per steer for pastures without prairie dogs. We then used the regression equation (see Figure 4) to estimate reductions in weight gain for steers in pastures colonized to various degrees. To estimate the economic impacts of prairie dogs on a per unit area basis, we multiplied the average beef production in uncolonized pastures (18.3  $\text{kg ha}^{-1}$ ; see Results) and the market price (\$2.23  $\text{kg}^{-1}$ ) resulting in a value of \$40.81  $\text{ha}^{-1}$  for pastures without prairie dogs. We again used the regression equation to estimate reductions in seasonal returns for pastures when various percentages of the pasture were occupied by prairie dogs.

## Results

Annual precipitation was below average in 4 of the 6 study years, with only 1999 being well above average (Figure 3). There were substantial increases in the size of prairie dog colonies within pastures during this period (Figures 2 and 3); the two pastures used for comparisons of livestock weight gains (22W and 5W) had 4–13% of the area occupied by prairie dogs in 1999 and 63–76% in 2004. Visual counts on prairie dog colonies were variable, but maximum yearly visual counts on each colony yielded a population density estimate of 28 prairie dogs  $\text{ha}^{-1}$  (range 20–40  $\text{ha}^{-1}$ ). For instance, the colony in pasture 5W (Figure 2) increased from 31 to 150  $\text{ha}$  between 2000 and 2004, which relates to a population increase from approximately 870 to 4200 prairie dogs.

Over the 6-year study, mean seasonal cattle weight gains in uncolonized pastures ranged from 71.9 kg per steer in 2002, a severe drought year, to 166.9 kg per steer



**Figure 3.** Annual precipitation during the study period (1999–2004) and percent of four individual pastures colonized by prairie dog colonies at the USDA-ARS CPER located near Nunn, CO.

in 1999 (Table 1), a year with exceptionally high precipitation (Figure 3). In pastures colonized by prairie dogs, the range of seasonal cattle weight gains was from 65.0 to 163.9 kg per steer, with the low and high values also occurring during 2002 and 1999, respectively (Table 1). Over the seven pasture–year combinations, in which annual growing conditions and precipitation differed (Figure 3), mean seasonal cattle weight gain in uncolonized pastures was 122.5 kg per steer, which was 6% greater than that of gains by steers (115.2 kg per steer) in pastures that had a range (4 to 63%, mean = 24%) of colonization by prairie dogs (Table 1). Significant ( $P < 0.10$ ) differences in weight gains between pastures with and without prairie dogs occurred in 1999, 2002, and 2004, but only the 2004 comparison was highly significant ( $P < 0.0001$ ). Of note, this comparison involved the pasture with the highest percentage of colonization (63%). On an area basis, mean cattle weight gain in uncolonized pastures was 18.3  $\text{kg ha}^{-1}$



**Table 1. Mean ( $\pm 1$  SE) livestock weight gains in 129.5 ha pastures with and without prairie dogs at moderate stocking densities (approximately one steer per 6.5 ha) at the CPER near Nunn, CO**

Year	Grazing period	Pasture	Area colonized by prairie dogs (%)	Number of steers	Gain per head (kg)	Gain per area (kg ha <sup>-1</sup> )
1999	May 18–Oct 7	5W	12.9	20	163.9 (3.5)	25.3
	May 18–Oct 7	7N	0	20	166.9 (3.9)	25.8
	May 21–Oct 5	22W	4.3	20	148.1 (4.2)	22.9
	May 21–Oct 5	10S	0	20	159.0 (4.5)*	24.6
2000	May 19–Sept 6	5W	18.4	20	71.7 (2.8)	11.1
	May 19–Sept 6	7N	0	20	76.3 (2.2)	11.8
	May 18–Sept 6	22W	5.8	21	79.5 (2.1)	12.9
	May 18–Sept 6	28N	0	21	79.5 (2.2)	12.9
2001	May 15–Oct 11	5W	27.3	16	161.3 (6.0)	19.9
	May 15–Oct 11	7N	0	16	166.6 (4.0)	20.6
2002	May 14–Aug 9	5W	36.3	20	65.0 (2.5)	10.0
	May 14–Aug 9	1W	0	20	71.9 (2.8)*	11.1
2004	May 18–Oct 13	22W	62.7	20	116.8 (2.7)	18.0
	May 18–Oct 13	24NW/SE	0	20	137.3 (3.0)**	21.2

\* indicates significant ( $P < 0.10$ ) difference between pasture comparisons within a year  
 \*\* indicates significant ( $P < 0.0001$ ) difference between pasture comparisons within a year

across the seven pasture-year combinations, whereas the mean weight gain in pastures colonized by prairie dogs was 17.2 kg ha<sup>-1</sup> (Table 1).

Relative livestock weight gains decreased linearly with increasing percentage of the pasture colonized by prairie dogs (Figure 4); however, this decrease was slower than the increase in area colonized by prairie dogs. For example, relative to pastures without prairie dogs, livestock weight gains decreased by 5.5% when 20% of the pasture was colonized by prairie dogs, and by 13.9% with 60% colonization.

Recent colonization of pastures by prairie dogs impacted estimated economic returns to livestock producers via reductions in livestock weight gains during the grazing season (Table 2). For example, a 20% level of colonization by prairie dogs reduced the estimated value of livestock weight gain by \$14.95 per steer (from \$273.18 to \$258.23 per steer) and by \$2.23 ha<sup>-1</sup> (from \$40.81 to \$38.58 ha<sup>-1</sup>), a 5.5% reduction. In pastures

with prairie dog colonization at 60%, the value of livestock weight gain was reduced by \$37.91 per steer and \$5.58 ha<sup>-1</sup>, or about 14%.

## Discussion

The rapid rates of expansion of the black-tailed prairie dog colonies in our four shortgrass steppe study pastures, from a total area of 29 ha in 1999 to 343 ha in 2004, were similar in magnitude to those reported by Antolin *et al.* (2006) for the adjacent PNG, where colonies increased more than six-fold in area (303 ha to 1886 ha) during the same period. In more productive, mixed-grass prairie, mean annual rates of expansion of the nine most rapidly growing colonies (out of 11 at their study site) studied by Dalsted *et al.* (1981) was 27%, for a doubling time of about 3 years. This contrasts sharply with two other colonies Dalsted *et al.* (1981) studied, one of which was in Wind Cave National Park. This colony was studied intensively by Hoogland (2001) and had annual growth rates of less than 1% because it was located within a small valley surrounded by wooded hillsides, which provided no suitable habitat. While these results clearly demonstrate the potential for black-tailed prairie dog colonies to expand rapidly during periods of drought and without control efforts, the long-term data of Stapp *et al.* (2004) and

**Table 2. Economic impacts of prairie dogs on livestock producers calculated from regression equation shown in Figure 4**

Area colonized by prairie dogs (%)	Gain (kg head <sup>-1</sup> )	Value of gain per steer (\$)	Gain (kg ha <sup>-1</sup> )	Value of gain per ha (\$)
0	122.5	\$273.18	18.3	\$40.81
20	115.8	\$258.23	17.3	\$38.58
40	110.6	\$246.64	16.5	\$36.80
60	105.5	\$235.27	15.8	\$35.23

Calculations assume a price of \$2.23 kg<sup>-1</sup> for weight gain (see Methods)



Antolin et al. (2006) also demonstrate that individual colonies on the shortgrass steppe periodically go temporarily extinct, primarily as a result of plague. The rapid expansion of colonies at both the CPER and PNG from 2000–2003 occurred during a drought period, when there were few plague outbreaks; plague is not known to have occurred at the research site of Dalsted et al. (1981) in South Dakota. At a landscape scale, colony expansion is slowed or even reversed during plague outbreaks, even though some individual colonies may be expanding (Antolin et al. 2006). It is unlikely that the recent, rapid colony expansion observed at CPER will be sustained over the long term. Plague epizootics in prairie dogs appear to be strongly correlated with the wetter and warmer winters and cooler summers during El Niño events, and the probability of extinction increases as colony size increases above about 14 ha (Stapp et al. 2004).

Cattle gained less weight in pastures with prairie dogs, but the reduction in weight gains was proportionately less than the increase in area colonized by prairie dogs. This is probably attributable to the high grazing resistance of the dominant perennial grasses blue grama (*Bouteloua gracilis*) and buffalograss (*Buchloe dactyloides*). The grazing resistance has probably resulted from convergent selection pressures of long evolutionary history of grazing and semiaridity (Milchunas et al. 1988). Despite the high level of disturbance caused by prairie dogs, the grazing resistance of these highly palatable grasses prevents rapid plant community changes to less palatable forbs and sub-shrubs. The longer term impacts of continued high levels of disturbance on this plant community suggest that vegetation composition shifts do occur eventually (Hartley and Detling unpublished). With recent colonization and moderate prairie dog densities, however, impacts of prairie dogs on shortgrass steppe on the CPER are less than would be expected on sites with older colonies and higher population densities. In addition, we would expect lower impacts in shortgrass steppe compared to more productive ecosystems, as prairie dogs graze vegetation to approximately the same height in shortgrass steppe and mixed-grass prairie (Guenther and Detling 2003), and belowground constraints (eg soil water) drive plant–soil relationships in more semiarid systems (Burke et al. 1998). Further research is needed to ascertain: (1) the effects of prairie dogs on livestock weight gains in this ecosystem over longer periods, with potentially greater changes in vegetation composition on the colonized areas; (2) cattle weight gain after prairie dog abundance is reduced due to plague; and (3) the level of colonization that results

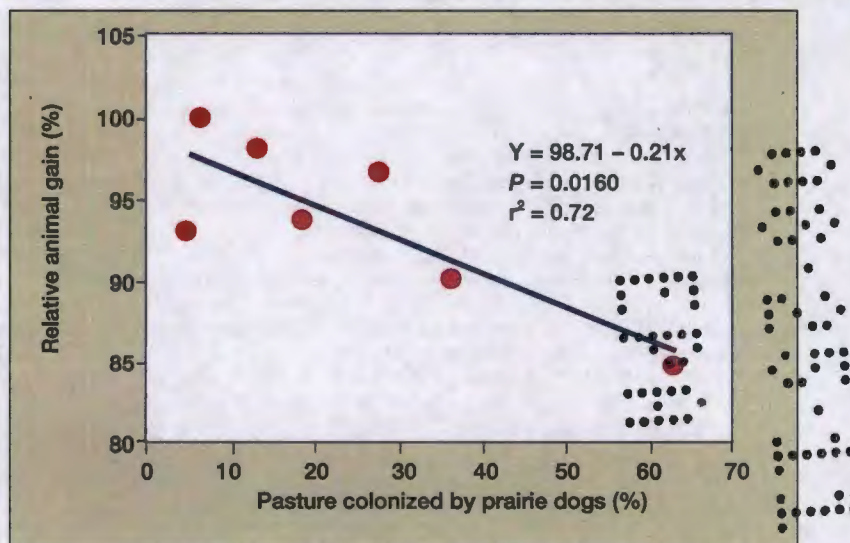


Figure 4. Response of relative livestock weight gain (percentage, weight gain in pastures with prairie dogs/weight gain in pastures without) to increasing area colonized by prairie dogs at the USDA-ARS CPER.

in net economic losses to livestock producers. Land managers may need to decrease stocking rate as prairie dogs increase in order to compensate for reductions in livestock weight gains and to reduce grazing pressure and overuse of unoccupied areas within pastures; this will probably increase gain per animal but may decrease gain ha<sup>-1</sup> (Bement 1969).

#### Acknowledgments

M Ashby, J Thomas, S Clapp, T Smith, and T Kanode collected animal data at the CPER. Crow Valley Livestock Cooperative Inc provided the livestock. D Tripp, M Lindquist, L Savage, and B Flynn supplied the prairie dog colony area and abundance data. This research was supported in part by National Science Foundation Grants DEB 9632852 and DEB 0217631 for the Shortgrass Steppe Long-Term Ecological Research Project. We appreciate constructive comments by R Heitschmidt, J Truett, and C Slobodchikoff.

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Kansas Department of Agriculture

Sam Brownback, Governor

February 22, 2011

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Subject: Response to letter requesting additional information  
Date received from EPA: February 10, 2011  
Notification of a Special Local Need  
SLN No. KS100003; Rozol Prairie Dog Bait  
Date received by EPA: December 21, 2010

Dear Mr. Hebert:

When the Kansas Department of Agriculture requested the first special local need registration for a Rozol Pocket Gopher Bait in 2004, the intended purpose was to provide additional precautionary statements and directions for use that would result in lower potential exposure of non-target species to the bait as well as better safety for humans when used to control prairie dogs. Being pragmatists, we find ourselves again with the same purpose: using application methods that allow for measurement and placing material into the prairie dog burrow from less than 6 inches above soil level. This helps insure more bait going six inches into the burrow than application by hand measuring from a scoop and dropping it into the burrow opening from hand level height. There is no currently registered anticoagulant rodenticide for the control of prairie dogs that allows other than hand baiting methods.

Kansas has not considered the black tailed prairie dog to be an "interregional" pest problem. The species is limited to the short-grass biome areas of 11 states. This is a defined region with similar climate, soil types, and plant and animal habitat. The species is considered to be an agricultural pest in some areas of those eleven states. I am unaware of how black tailed prairie dog habitat and the control of black tailed prairie dogs would be considered as interregional unless one considers the political boundaries of regions instead of the environmental boundaries.

The Code of Federal Regulations (CFR) 40 defines a special local need as "an existing or imminent pest problem within a State for which the State lead agency, based upon satisfactory supporting information, has determined that an appropriate federally registered pesticide product is not sufficiently available." According to 40CFR 162.153(b) ... "the state shall determine whether there is a special local need for the registration. Situations which the state may consider as not involving a special local need include, ... use of a pesticide product registered by other states on an interregional or nationwide basis." The letter from EPA states that six states had previously issued SLN registrations for Rozol Prairie Dog Bait allowing mechanical application. An interregional registration would be an obvious choice if such a registration existed. Further, 40CFR 162.153(b) uses advisory language in the statement, "Situations which the state may consider as not involving a special local need include..." rather than enforcement language. A truly local need exists given the lack of enforcement language and the inability to address the existing pest problem.



The black tailed prairie dog is found in forty-six of the one hundred-five counties in Kansas or approximately 44% of the counties in the state. The U.S. Fish and Wildlife introduced the black-footed ferret in one county. U.S. Department of Agriculture, Animal and Plant Health Inspection Services' declared an exemption under section 18 to allow for mechanical baiting in the immediate vicinity of the black footed ferret release site. The request for the crisis exemption under FIFRA Section 18 for zinc phosphide for surface application by the U.S. Department of Agriculture, Animal and Plant Health Inspection Services' Wildlife Services (USDA-APHIS Wildlife) was for mechanical application for the control of prairie dogs. A similar request, use of mechanical baiting, is made through the SLN for Rozol Prairie Dog bait. A federal agency has much more flexibility and opportunity for using zinc phosphide baits under optimum timing weather conditions for successful control than does a typical livestock producer. The farmers and ranchers of Kansas have no less need to control prairie dogs than USDA-APHIS, however they must work their control efforts into a schedule involving other ranch and livestock production activities.

Special Local Need KS100003 Rozol Prairie Dog Bait is concerned with the method of application, specifically, mechanical application. Commercial applicators only use hand baiting when burrow openings are very close together. There is no significant difference between hand application and mechanical application over a short period of time such as several hours. Approximately 250 burrows per hour may be treated by either method. It has been estimated that 1400 burrows may be treated in an eight hour day by hand application compared to 2000 burrows with a one sided mechanical applicator. USDA-APHIS Wildlife requested a crisis Section 18 for mechanical application in order to bait more burrows in a shorter period of time. A Section 18 was granted to USDA-APHIS Wildlife for mechanical baiting without concern to the potential increase in exposure to the number of acres treated.

The Rozol Prairie Dog bait section 3 label permits baiting October 15 – March 15. Environmental conditions such as wind, snow, frigid temperatures, etc. limit the time the bait is actually applied to about 30-40 days of the allowable baiting season. Applicator safety is an issue. On warm days, hand baiting has the potential of exposing the applicator to venomous snake bites and increased pesticide exposure.

Rozol Prairie Dog bait is a restricted use pesticide due to inhalation hazard. Hand baiting significantly increases primary inhalation during the baiting procedure but also secondary inhalation from the bait that adheres to the applicator's clothing. Human error related to fatigue and cold weather exposure may increase the amount of exposed bait on the surface instead of being placed 6 inches into the prairie dog burrow.

Hand baiting may involve dropping bait into a prairie dog burrow from a scoop used to measure the amount of bait. This is done from hand height from a standing position. Short grass prairie areas are also typically regions that are windy. The average annual wind speeds for Goodland, KS (NW), and Dodge City KS, (SW) are 12.5 mph and 14 mph, respectively. The greater the distance above the hole that the bait materials are released will increase the amount of baiting material that does not reach the bottom of the burrow opening. One would assume the lower height the bait was released by using the mechanical baiting device would be desirable when baiting under windy conditions. Hand held mechanical baiting devices quite similar to the devices that are mounted on ATVs are not discussed since their use is not widespread and they operate in the same manner as those mounted on a vehicle: by pushing a button to dispense a measured amount of bait directly over the burrow by means of a tube opening very close to the level of the soil surface.

The mechanical baiter most commonly used is sold by PD Feeders, LLC. The baiter is a 12 volt system with hot and ground wire hookup, push button operated, 2' ABS extension, delivers ¼ cup per application and weighs about 29 pounds. The baiter is typically mounted on an ATV (attached photo from website, <http://prairiedogbaiter.com/>). The controller may be hand-held or mounted on the handlebar for easy push-button operation (attached photo from PD Feeders, LLC website, <http://prairiedogbaiter.com/>). The ABS extension is approximately 4" off the ground which allows placement of bait approximately 6" into the burrow as required by the label. One could argue at this point that using one of Bob's Baiters is merely enhanced hand baiting since a switch must be depressed by hand each time a burrow is baited.



The accuracy of bait placement by mechanical bait application has come into question. The statement, "The provided statistical analysis from the Lee and Hyngstrom (2007) study is not necessarily predictive of what would occur under normal, operational use by applicators using mechanical or hand application. The analysis was based on monitoring data from a phase of the study that did not have the goal of assessing accuracy of bait placement." is simply not accurate.

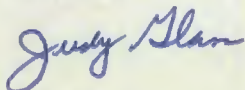
The statistical analysis of the Lee and Hyngstrom (2007) study was provided with the initial submission. Data was summarized from 70 trial days with 50 burrows each day. The methods of application were hand, mechanical and a combination of both. Baiting of the burrows was performed in the usual customary manner. The data was analyzed using SAS JMP one-way analysis of variance (ANOVA). Data collected specifically for the purpose of assessing accuracy of bait placement by three methods of application shows no significant differences among the methods. No significant differences were found at the  $p < .10$  level between the following: the means of the number of locations bait is visible; the percentage of burrows where bait is visible; the distance from the surface that bait may have been visible; or the approximate number of grains of bait that is visible. ( Analysis of data was submitted with original notification). Mechanical baiting is the most efficient and cost effective way to accomplish the task of managing the prairie dog complexes.

The stocking rate in western Kansas is 10-12 acres per head of cattle. The market value of livestock in the area where prairie dogs occur is in excess of \$4,476,557,000 (incomplete data). A significant portion of the Kansas economy is related either directly or indirectly to livestock production. According to a six year study by Derner, Detling and Antolin, (2006) livestock weight gains decreased linearly depending on the amount of pasture occupied by prairie dogs. By using a statistical method of regression analysis, they determined that each 10 percent of increased occupation resulted in a 2.1 percent reduction in weight gain. Weight gains decreased 5.5% when 20% of the pasture was colonized by prairie dogs and by 13.9% with 60% colonization. A pasture with a 20% prairie dog occupancy rate reduced the estimated value of livestock weight gain by \$14.95 per steer (March, 2006). A pasture with a 60% prairie dog occupancy rate reduced the estimated value of livestock weight gain by \$37.91 per steer (March, 2006). It is obvious that prairie dogs are a chronic condition hindering the maximization of rangeland production into livestock weight gain.

To the best of our knowledge, evidence has not been presented to EPA establishing that hand baiting lessens the risk of exposure than would be expected using a mechanical device that accurately measures bait and positions the bait to be dispensed directly into the prairie dog burrow. Nor is the Kansas Department of Agriculture aware of any document or decision published by EPA to deny, disapprove, suspend, or cancel the use or application method as presented in the request for special local need. We stand ready to work with EPA to refine the language to better describe the mechanical equipment that may be used, and how the mechanical equipment may be used, but we do not feel that there is any adverse environmental impact from the use of mechanical baiting devices for prairie dog control.

Please do not hesitate to contact me if you have additional questions or concerns.

Sincerely,



Judy Glass  
Pesticide Registration Specialist

Attachments:

Photo of mechanical baiter mounted on ATV

Photo of mechanical baiter switch

Letter from Lipatech

Copy of *Are livestock weight gains affected by black-tailed prairie dogs?* Justin Derner, James K. Detling, and Michael F. Antolin













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Attn: Mr. John Hebert

January 9, 2011

Re: Supporting materials for amendment application  
Rozol Prairie Dog Bait, EPA Reg. No. 7173-286

Dear Mr. Hebert,

Liphatech submitted an amendment application for Rozol Prairie Dog Bait, EPA Reg. No. 7173-286, in December of 2010. This amendment would change from the product label by removing the requirement to place bait "by hand" and would thus allow bait to be placed using mechanical bait dispensing equipment.

The enclosed study is submitted in support of that amendment application. This enclosed study is a statistical analysis of some of the data that was collected during the large scale field study that supports the registration of Rozol Prairie Dog Bait ("*Field Efficacy and Hazards of Rozol Bait for Controlling Black-Tailed Prairie Dogs (Cynomys ludovicianus)*") by Lee and Hygnstrom, 2007, MRID 47333602). Specifically, this is an analysis of the data concerning the locations where bait was observed following baiting operations conducted both by hand and by mechanical bait dispensing equipment. The enclosed statistical analysis was performed by the same scientist who conducted the original field study, Charles Lee.

Liphatech has been informed that a similar analysis, conducted by the same Charles Lee, has already been submitted to you by the Kansas Department of Agriculture, in support of a FIFRA Section 24(c) SLN registration KS-100003, granted by KDA last December. However, Liphatech was not provided with a copy of this earlier analysis by Lee. Liphatech sponsored Charles Lee to produce the enclosed report of his statistical analysis with the intent of making this submission in support of our pending amendment application.

We have now received a copy of EPA's letter to the Kansas Department of Agriculture, dated February 4, 2011, requesting additional information to support EPA SLN No. KS-100003. This letter asserts that

"The provided statistical analysis from the Lee and Hygnstrom (2007) study is not necessarily predictive of what would occur under normal, operational use by applicators using mechanical or hand application. The analysis was based on monitoring data from phase of the study that did not have the goal of assessing accuracy of bait placement."

page 1 of 2



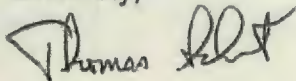
Mr. John Hebert  
January 9, 2011  
Page 2 of 2

We strongly disagree with both allegations quoted above. The field study was conducted and documented under EPA's Good Laboratory Practice requirements, and involved applications at a large number of sites over the course of six months. The bait application performed during the study was conducted according to the label instructions, using standard methods and common commercial application equipment, as described in the study protocol and report. The applications were made by several different experienced commercial applicators holding the proper certifications, as well as inexperienced persons working under their direct supervision. We believe that the record shows that the applications were made properly, in the usual and customary manner, and that there is no evidence to support the postulation that that the study "is not necessarily predictive of what would occur under normal, operational use..." In the many reviews conducted by various EPA reviewers of this study, no comment was ever made to suggest that that the bait application was not reflective of normal, operational use.

Contrary to the statement in EPA's letter, the report submitted today is a statistical analysis of data that was specifically collected for the purpose of assessing the accuracy of bait placement. This intention and the procedure used are described in both the protocol and final report of the field trial. The study plan was very clear about our intention to collecting data on bait placement in order to provide information about the availability of bait on the ground surface following routine application. This data was analyzed as such in the review by EPA's EFED Division in their "Chlorophacinone Effects Determination" dated September 29, 2010 and published on the EPA website. Thus, we dispute the statement in EPA's letter that this analysis "was based on monitoring data from phase of the study that did not have the goal of assessing accuracy of bait placement."

Thank you for your attention to this matter. We will be happy to supply additional information as may be needed during the consideration of the study submitted today. Please contact me directly if there is any problem or questions concerning this submission.

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas Schmit", with a stylized flourish at the end.

Thomas Schmit  
Manager of Regulatory Affairs

cc: Ms. Judith Glass, KDA



## **FINAL REPORT**

### **Study Title**

Statistical Analysis of Bait Placement in  
a Prairie Dog Efficacy Study

### **Data Requirement**

40 CFR 158.640, Product Performance

### **Author**

Charles Lee

### **Study Completed on**

January 28, 2011

### **Performing Laboratory**

Charles Lee  
Department of Animal Science and Industry  
Kansas State University Research and Extension  
Room 131 Call Hall  
Manhattan, KS 66506

### **Project Identification Number**

LTI 11019

### **Sponsor and Submitter**

Liphatech, Inc.  
3600 W. Elm Street  
Milwaukee, WI 53209



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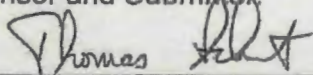


**STATEMENT OF NO DATA CONFIDENTIALITY CLAIMS**

**Statistical Analysis of Bait Placement in  
a Prairie Dog Efficacy Study**

No claim of confidentiality is made for any information contained in this study on the basis of its falling within the scope of FIFRA § 10(d) (1) (A), (B), or (C).

Sponsor and Submitter:

 Thomas Schmit

Date: Feb 9, 2011

Thomas Schmit, Manager of Regulatory Affairs  
Liphatech, Inc.



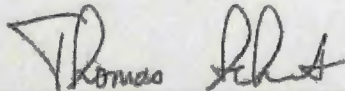
**GOOD LABORATORY PRACTICE STATEMENT**

**Statistical Analysis of Bait Placement in  
a Prairie Dog Efficacy Study**

This study does not meet the requirements for 40 CFR Part 160, and differs in the following ways:

1. The study is a statistical analysis of data that was collected in a separate study; no data was generated or collected during this study.

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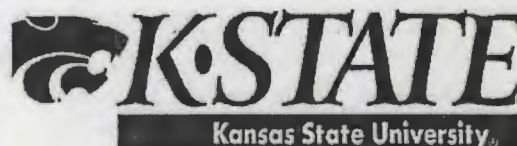
Thomas Schmit, Manager of Regulatory Affairs  
Liphatech, Inc.

Date: Feb 9 2011



January 28, 2011

Tom Schmit  
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Fax: 785-532-5681

Dear Tom,

You have asked for a better explanation of the analysis of the data that could be used to compare the application method (hand, mechanical or combination) to the other metrics concerning bait availability that were collected during the Rozol trial. That trial was conducted by Dr. Scott Hygnstrom and myself beginning in the fall of 2006. The title of the trial was "Field efficacy and hazards of Rozol bait for controlling black-tailed prairie dogs (*Cynomys ludovicianus*)". You received a final report in the summer of 2007.

A methodical bait search of each site was conducted. The responses (metrics) included the number of locations where bait was visible, the distance from the surface that the bait was visible at that burrow and the approximate number of grains that was visible at that burrow. The data was collected each day for the first seven days at each site. Due to the large number of burrows that were treated, the first 50 burrows were evaluated from a transect line randomly placed through the long axis of the middle of the prairie dog colony. The value is the number of burrows out of the fifty marked burrows at each site where that metric was evaluated. All sites were evaluated for the metrics on days 1-7 of the trial. The experimental unit in this trial is the 50 burrow grouping not each individual burrow. I looked at the data for each day individually and then pooled the days to have an overall subset. The trial was not designed to compare methods of bait application so sample sizes are small.

The data that was collected was put into a spreadsheet format and then inserted into SAS JMP 8 software for analysis. JMP is very graphical and I've always found that useful to display and analyze data.

One of the most commonly used statistical techniques is analysis of variance (ANOVA). This technique examines the amount of variability in a response and tries to understand where that variability is coming from. You can use ANOVA to compare populations or groups. It works well in experiments when you apply treatments to subjects and measure the response. We simply want to look at the relationships between the data that is found in the columns and thus compare the means.

The output that I have provided starts with a graph of the one way analysis of the metrics. The dispense method used is along the x axis and the response of the metric is along the y axis. The means diamond shows the mean (average) value of the response for each type of dispensing method. The upper and lower points of the means diamond span a 95% confidence interval computed from sample values for each dispensing method. The width of each diamond is proportional to the group size. The comparison circles found along the right of each graph provides a graphical test of whether the dispensing methods are statistically different. The center of each circle is aligned with the mean of the group it represents. The diameter of each circle spans the 95% confidence level for each group. Whenever circles overlap, it suggests that the means may not be significantly different.

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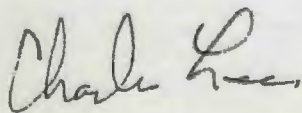
The "Summary of Fit" table summarizes the distribution methods with each statistic listed. The "Analysis of Variance" table shows the value of the  $F$ -probability ( $\text{Prob} > F$ ). This shows that differences as great as seen in this dispensing method evaluation are expected that number of times out of 10,000 similar trials if the distribution method did not really change the response metrics. You utilize the  $\text{Prob} > F$  value to determine if at least one pair of the means is statistically different. The lower that value, the more confident you can be that the means are truly different. Many researchers use  $p = 0.05$  to determine significance. The "Means Comparisons" table shows which if any of the group means are significantly different. The Tukey-Kramer HSD test is a multiple comparison test to determine which means are different while minimizing Type I error for a given  $\alpha$ .

After evaluating the outputs I determined that when analyzed on a daily basis, there is no significant difference found using any of the metrics. The output shows the means differ but not significantly. However when I use the pooled days, we see a significant difference for one metric (Number of locations bait is observed from 0"-6" from the surface). At the  $\text{Prob} > F$  value of 0.0014 level, hand dispensing results in a significantly lower mean number of burrows observed where bait is found at that distance from the soil surface than either machine or the combined dispensing method.

I have included the following for your review:

- 1.) Copy of the excel spreadsheet I used to evaluate the dispensing methods.
- 2.) JMP output table for each metric evaluated on day 1-7.
- 3.) JMP output table for each metric evaluated with days pooled.
- 4.) Summary table of the Dispensing method means and corresponding  $p$  values.

Sincerely,



Charles Lee  
Extension Wildlife Specialist  
Department of Animal Sciences and Industry  
Kansas State University, 131 Call Hall  
Manhattan, KS 66506-1600  
785-532-5734, [clee@ksu.edu](mailto:clee@ksu.edu)



# Are livestock weight gains affected by black-tailed prairie dogs?

Justin D Derner<sup>1</sup>\*, James K Detling<sup>2</sup>, and Michael F Antolin<sup>3</sup>

There is little empirical data addressing the important and controversial question of how prairie dogs (*Cynomys* spp) affect livestock weight gains in western rangelands. This is particularly relevant in the short-grass steppe, where the area occupied by prairie dogs has increased substantially in recent years, exacerbating conflicts with livestock producers. In our 6-year study, livestock weight gains decreased linearly, but at a rate slower than the rate of colonization by black-tailed prairie dogs (*Cynomys ludovicianus*). This decrease in livestock gains resulted in lower estimated economic returns. For example, pastures with 20% of area occupied by prairie dogs reduced the estimated value of livestock weight gain by \$14.95 per steer (from \$273.18 to \$258.23 per steer) and by \$2.23 ha<sup>-1</sup> (from \$40.81 to \$38.58 ha<sup>-1</sup>). In pastures with 60% occupancy, reduced livestock weight gain lowered estimated value by \$37.91 per steer and \$5.58 ha<sup>-1</sup>, or about 14%.

Front Ecol Environ 2006; 4(9): 459–464

Prairie dogs (*Cynomys* spp) are colonial, herbivorous, burrowing rodents (Figure 1) that have a relatively high dietary overlap with both native and domestic grazers (Detling 2006). Because they have long been viewed as competitors with livestock for forage, prairie dogs have been the target of large-scale eradication campaigns for over a century. This, together with loss of habitat and the introduction of sylvatic plague into the western portion of their range, has resulted in as much as a 98% reduction in the area of North American grasslands that they occupy (Forrest 2005).

However, recognizing that prairie dog habitat contributes to the maintenance of grassland species diversity and is critical for preservation of the endangered black-footed ferret (*Mustela nigripes*), interest in conserving prairie dogs has increased (Miller *et al.* 1990, 1994; Wuerthner 1997; Kotliar *et al.* 1999). As a result, there is now a heated debate between conservation biologists and livestock producers as to the merits of allowing prairie dog populations to expand on western rangelands (see Vermeire *et al.* 2004; Forrest 2005). Unfortunately, there is scant scientific evidence pertaining to the question of primary concern to livestock producers: to what extent are livestock weight gains affected by the presence and abundance of prairie dogs? The lack of such information has fundamental economic consequences for managers of both public and private lands.

Prairie dogs may potentially reduce carrying capacity of rangelands for large herbivores by consuming forage, clipping plants to enhance predator detection, building soil mounds around their burrow entrances, and changing plant

species composition (Vermeire *et al.* 2004; Detling 2006). Studies have shown that summer weight gains of yearling steers in Oklahoma mixed-grass prairie did not differ significantly in pastures with and without prairie dogs (O'Meilie *et al.* 1982), and abundance of prairie dogs was greater with heavy cattle grazing compared to areas recently excluded from grazing (Uresk *et al.* 1982). However, several limitations in these studies have been identified (see Vermeire *et al.* 2004). Because there are few other empirical field studies on the subject (Vermeire *et al.* 2004; Detling 2006), additional research is needed, controlling for prairie dog presence in different types of grasslands, to understand how prairie dogs affect livestock performance.

Despite relatively frequent, plague-induced local extinctions, particularly following El Niño events, both the number of black-tailed prairie dog (*Cynomys ludovicianus*) colonies and the area they occupy have been increasing on the Pawnee National Grasslands (PNG) in northern Colorado since 1981 (Stapp *et al.* 2004; Antolin *et al.* 2006). In the mid-1990s, several black-tailed prairie dog colonies established naturally in pastures of the USDA-ARS Central Plains Experimental Range (CPER), a shortgrass steppe grazing research site adjacent to PNG (Figure 2). The objectives of the research reported here were to (1) measure the rate of expansion of these prairie dog colonies on CPER pastures, (2) evaluate the effect of percentage of pastures newly colonized by prairie dogs on cattle weight gains, and (3) estimate the impact that prairie dogs may have on the economic returns of livestock grazing in shortgrass steppe.

## ■ Methods

Our CPER study site (40°49'N, 107°47'W), approximately 60 km northeast of Fort Collins, Colorado, has a mean annual temperature of 8.6°C and mean annual

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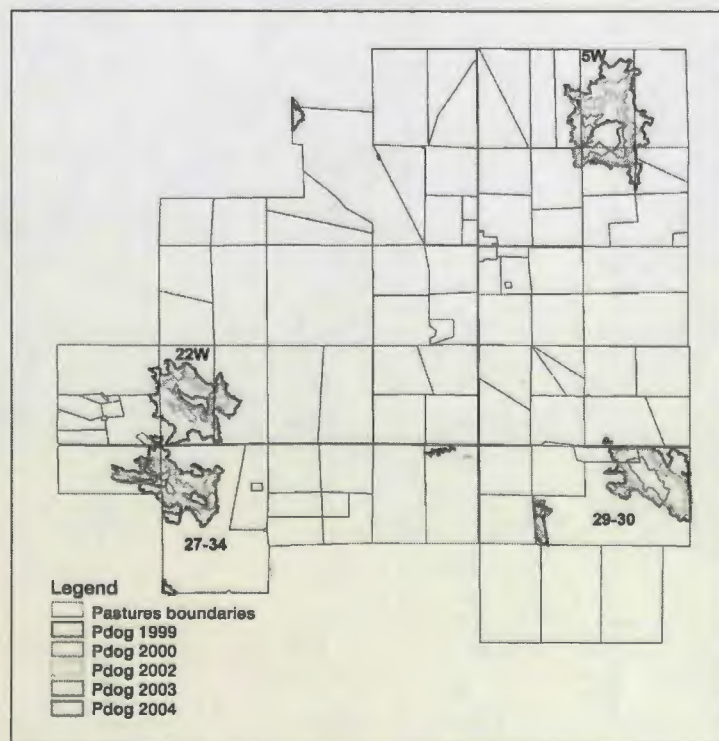
Courtesy of M. Ashby

**Figure 1.** Black-tailed prairie dogs (*C. ludovicianus*) and cattle at the USDA-ARS CPER located near Nunn, CO.

aboveground production of  $1000 \text{ kg ha}^{-1}$  (Lauenroth and Sala 1992). Vegetation is dominated by blue grama grass (*Bouteloua gracilis*; Milchunas et al. 1989; Derner et al. 2006), and soils are mostly sandy loams (Ustollic

( $X_i$ ) from visual counts ( $Y_i$ ) by the formula  $X_i = (Y_i - 3.04)/0.4$  (Severson and Plumb 1998).

Between 1999 and 2004, livestock weight gains were compared between two colonized pastures (5W and 22W) and two pastures without prairie dog colonies. Comparisons with occupied pastures 27–34 and 29–30 were not carried out because uncolonized pastures of the same size and with the same breed, sex, and age of cattle were not available. Each pasture to be compared had (1) yearling steers with initial entry weights of  $263 \pm 37$  (mean  $\pm$  1SD) kg per animal, (2) the same area (129.5 ha), (3) moderate stocking density of 1 yearling per 6.5 ha (Bement 1969; Hart and Ashby 1998), and (4) a 5-month grazing season (mid-May to mid-October). Drought dictated earlier removal in 2000 (September 6) and 2002 (August 9). Over the 6-year study, seven comparisons met all criteria (Table 1). We did not measure vegetation composition or production. However, in the nearby shortgrass steppe on the PNG, a comparison of vegetation between similar-aged prairie dog colonies and adjacent uncolonized areas showed that peak biomass of grasses was only 50% as great on prairie dog colonies, while biomass of forbs was about 50% greater (Hartley and Detling unpublished). Nevertheless, cattle have been observed on prairie dog colonies at CPER and PNG approximately in proportion to their availability, and foraging was their predominant activity on



**Figure 2.** Areas of prairie dog colonies from 1999 to 2004 at the USDA-ARS CPER.



colonies during peak grazing hours (Guenther and Detling 2003).

Seasonal weight gains (kg per steer) were determined by weighing individual animals at the beginning and end of each grazing season. T-tests were used to compare seasonal animal weight gains in each of the seven pasture combinations. Beef production ( $\text{kg gain ha}^{-1}$ ) was determined by summing individual animal weight gains in each pasture and dividing by the area of the pasture. Relative gain (%) was calculated by dividing beef production in pastures with prairie dogs by production in pastures without prairie dogs. Linear regression analysis (SAS 9.1) was used to determine the relationship between relative livestock weight gain and percentage of pasture occupied by prairie dogs.

The economic impacts of prairie dogs were estimated on a per steer and a per unit area basis. The impact of colonization per steer was calculated using initial starting weights of 263 kg per steer and adding average seasonal gains of 122.5 kg per steer (see Results) in uncolonized pastures to obtain an end-of-season weight of 385.5 kg per steer. The current price of yearling steers in this weight range (375–398 kg in Colorado, [www.ams.usda.gov/mnreports/gl\\_ls165.txt](http://www.ams.usda.gov/mnreports/gl_ls165.txt), accessed 4 March 2006) is \$2.23  $\text{kg}^{-1}$ . This results in a livestock weight gain value of \$273.18 per steer for pastures without prairie dogs. We then used the regression equation (see Figure 4) to estimate reductions in weight gain for steers in pastures colonized to various degrees. To estimate the economic impacts of prairie dogs on a per unit area basis, we multiplied the average beef production in uncolonized pastures ( $18.3 \text{ kg ha}^{-1}$ ; see Results) and the market price (\$2.23  $\text{kg}^{-1}$ ) resulting in a value of \$40.81  $\text{ha}^{-1}$  for pastures without prairie dogs. We again used the regression equation to estimate reductions in seasonal returns for pastures when various percentages of the pasture were occupied by prairie dogs.

## Results

Annual precipitation was below average in 4 of the 6 study years, with only 1999 being well above average (Figure 3). There were substantial increases in the size of prairie dog colonies within pastures during this period (Figures 2 and 3); the two pastures used for comparisons of livestock weight gains (22W and 5W) had 4–13% of the area occupied by prairie dogs in 1999 and 63–76% in 2004. Visual counts on prairie dog colonies were variable, but maximum yearly visual counts on each colony yielded a population density estimate of 28 prairie dogs  $\text{ha}^{-1}$  (range 20–40  $\text{ha}^{-1}$ ). For instance, the colony in pasture 5W (Figure 2) increased from 31 to 150  $\text{ha}$  between 2000 and 2004, which relates to a population increase from approximately 870 to 4200 prairie dogs.

Over the 6-year study, mean seasonal cattle weight gains in uncolonized pastures ranged from 71.9 kg per steer in 2002, a severe drought year, to 166.9 kg per steer

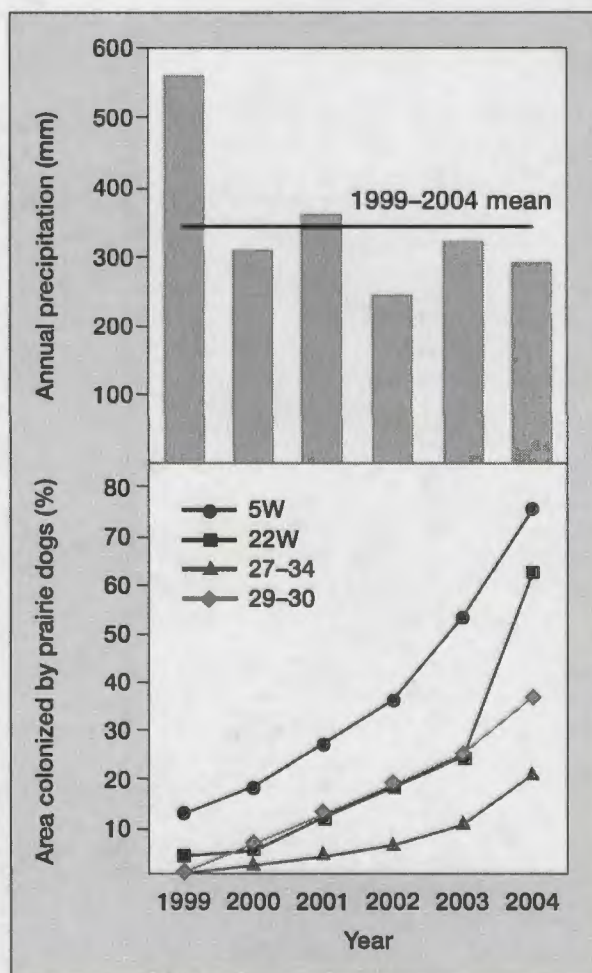


Figure 3. Annual precipitation during the study period (1999–2004) and percent of four individual pastures colonized by prairie dog colonies at the USDA-ARS CPER located near Nunn, CO.

in 1999 (Table 1), a year with exceptionally high precipitation (Figure 3). In pastures colonized by prairie dogs, the range of seasonal cattle weight gains was from 65.0 to 163.9 kg per steer, with the low and high values also occurring during 2002 and 1999, respectively (Table 1). Over the seven pasture-year combinations, in which annual growing conditions and precipitation differed (Figure 3), mean seasonal cattle weight gain in uncolonized pastures was 122.5 kg per steer, which was 6% greater than that of gains by steers (115.2 kg per steer) in pastures that had a range (4 to 63%, mean = 24%) of colonization by prairie dogs (Table 1). Significant ( $P < 0.10$ ) differences in weight gains between pastures with and without prairie dogs occurred in 1999, 2002, and 2004, but only the 2004 comparison was highly significant ( $P < 0.0001$ ). Of note, this comparison involved the pasture with the highest percentage of colonization (63%). On an area basis, mean cattle weight gain in uncolonized pastures was  $18.3 \text{ kg ha}^{-1}$



**Table 1. Mean ( $\pm 1$  SE) livestock weight gains in 129.5 ha pastures with and without prairie dogs at moderate stocking densities (approximately one steer per 6.5 ha) at the CPER near Nunn, CO**

Year	Grazing period	Pasture	Area colonized by prairie dogs (%)	Number of steers	Gain per head (kg)	Gain per area (kg ha <sup>-1</sup> )
1999	May 18–Oct 7	5W	12.9	20	163.9 (3.5)	25.3
	May 18–Oct 7	7N	0	20	166.9 (3.9)	25.8
	May 21–Oct 5	22W	4.3	20	148.1 (4.2)	22.9
	May 21–Oct 5	10S	0	20	159.0 (4.5)*	24.6
2000	May 19–Sept 6	5W	18.4	20	71.7 (2.8)	11.1
	May 19–Sept 6	7N	0	20	76.3 (2.2)	11.8
	May 18–Sept 6	22W	5.8	21	79.5 (2.1)	12.9
	May 18–Sept 6	28N	0	21	79.5 (2.2)	12.9
2001	May 15–Oct 11	5W	27.3	16	161.3 (6.0)	19.9
	May 15–Oct 11	7N	0	16	166.6 (4.0)	20.6
2002	May 14–Aug 9	5W	36.3	20	65.0 (2.5)	10.0
	May 14–Aug 9	1W	0	20	71.9 (2.8)*	11.1
2004	May 18–Oct 13	22W	62.7	20	116.8 (2.7)	18.0
	May 18–Oct 13	24NW/SE	0	20	137.3 (3.0)**	21.2

\* Indicates significant ( $P < 0.10$ ) difference between pasture comparisons within a year\*\* Indicates significant ( $P < 0.0001$ ) difference between pasture comparisons within a year

across the seven pasture-year combinations, whereas the mean weight gain in pastures colonized by prairie dogs was 17.2 kg ha<sup>-1</sup> (Table 1).

Relative livestock weight gains decreased linearly with increasing percentage of the pasture colonized by prairie dogs (Figure 4); however, this decrease was slower than the increase in area colonized by prairie dogs. For example, relative to pastures without prairie dogs, livestock weight gains decreased by 5.5% when 20% of the pasture was colonized by prairie dogs, and by 13.9% with 60% colonization.

Recent colonization of pastures by prairie dogs impacted estimated economic returns to livestock producers via reductions in livestock weight gains during the grazing season (Table 2). For example, a 20% level of colonization by prairie dogs reduced the estimated value of livestock weight gain by \$14.95 per steer (from \$273.18 to \$258.23 per steer) and by \$2.23 ha<sup>-1</sup> (from \$40.81 to \$38.58 ha<sup>-1</sup>), a 5.5% reduction. In pastures

with prairie dog colonization at 60%, the value of livestock weight gain was reduced by \$37.91 per steer and \$5.58 ha<sup>-1</sup>, or about 14%.

## Discussion

The rapid rates of expansion of the black-tailed prairie dog colonies in our four shortgrass steppe study pastures, from a total area of 29 ha in 1999 to 343 ha in 2004, were similar in magnitude to those reported by Antolin *et al.* (2006) for the adjacent PNG, where colonies increased more than six-fold in area (303 ha to 1886 ha) during the same period. In more productive, mixed-grass prairie, mean annual rates of expansion of the nine most rapidly growing colonies (out of 11 at their study site) studied by Dalsted *et al.* (1981) was 27%, for a doubling time of about 3 years. This contrasts sharply with two other colonies Dalsted *et al.* (1981) studied, one of which was in Wind Cave National Park. This colony was studied intensively by Hoogland (2001) and had annual growth rates of less than 1% because it was located within a small valley surrounded by wooded hillsides, which provided no suitable habitat. While these results clearly demonstrate the potential for black-tailed prairie dog colonies to expand rapidly during periods of drought and without control efforts, the long-term data of Stapp *et al.* (2004) and

**Table 2. Economic impacts of prairie dogs on livestock producers calculated from regression equation shown in Figure 4**

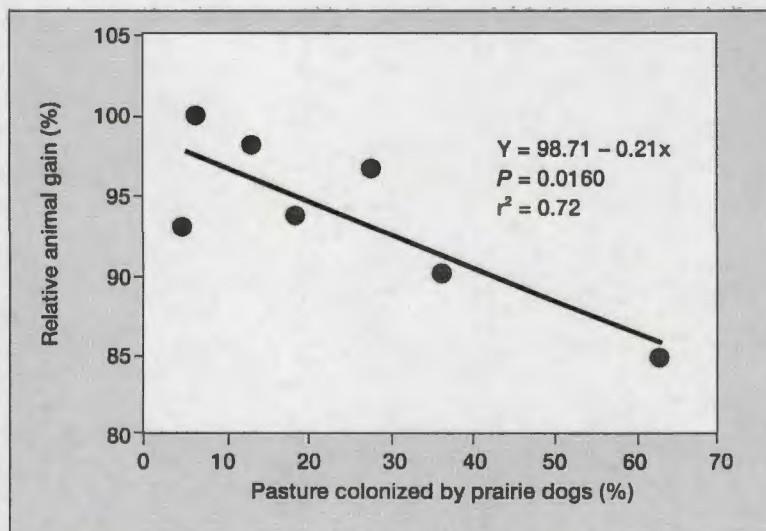
Area colonized by prairie dogs (%)	Gain (kg head <sup>-1</sup> )	Value of gain per steer (\$)	Gain (kg ha <sup>-1</sup> )	Value of gain per ha (\$)
0	122.5	\$273.18	18.3	\$40.81
20	115.8	\$258.23	17.3	\$38.58
40	110.6	\$246.64	16.5	\$36.80
60	105.5	\$235.27	15.8	\$35.23

Calculations assume a price of \$2.23 kg<sup>-1</sup> for weight gain (see Methods)



Antolin *et al.* (2006) also demonstrate that individual colonies on the shortgrass steppe periodically go temporarily extinct, primarily as a result of plague. The rapid expansion of colonies at both the CPER and PNG from 2000–2003 occurred during a drought period, when there were few plague outbreaks; plague is not known to have occurred at the research site of Dalsted *et al.* (1981) in South Dakota. At a landscape scale, colony expansion is slowed or even reversed during plague outbreaks, even though some individual colonies may be expanding (Antolin *et al.* 2006). It is unlikely that the recent, rapid colony expansion observed at CPER will be sustained over the long term. Plague epizootics in prairie dogs appear to be strongly correlated with the wetter and warmer winters and cooler summers during El Niño events, and the probability of extinction increases as colony size increases above about 14 ha (Stapp *et al.* 2004).

Cattle gained less weight in pastures with prairie dogs, but the reduction in weight gains was proportionately less than the increase in area colonized by prairie dogs. This is probably attributable to the high grazing resistance of the dominant perennial grasses blue grama (*Bouteloua gracilis*) and buffalograss (*Buchloe dactyloides*). The grazing resistance has probably resulted from convergent selection pressures of long evolutionary history of grazing and semiaridity (Milchunas *et al.* 1988). Despite the high level of disturbance caused by prairie dogs, the grazing resistance of these highly palatable grasses prevents rapid plant community changes to less palatable forbs and sub-shrubs. The longer term impacts of continued high levels of disturbance on this plant community suggest that vegetation composition shifts do occur eventually (Hartley and Detling unpublished). With recent colonization and moderate prairie dog densities, however, impacts of prairie dogs on shortgrass steppe on the CPER are less than would be expected on sites with older colonies and higher population densities. In addition, we would expect lower impacts in shortgrass steppe compared to more productive ecosystems, as prairie dogs graze vegetation to approximately the same height in shortgrass steppe and mixed-grass prairie (Guenther and Detling 2003), and belowground constraints (eg soil water) drive plant–soil relationships in more semiarid systems (Burke *et al.* 1998). Further research is needed to ascertain: (1) the effects of prairie dogs on livestock weight gains in this ecosystem over longer periods, with potentially greater changes in vegetation composition on the colonized areas; (2) cattle weight gain after prairie dog abundance is reduced due to plague; and (3) the level of colonization that results



**Figure 4.** Response of relative livestock weight gain (percentage, weight gain in pastures with prairie dogs/weight gain in pastures without) to increasing area colonized by prairie dogs at the USDA-ARS CPER.

in net economic losses to livestock producers. Land managers may need to decrease stocking rate as prairie dogs increase in order to compensate for reductions in livestock weight gains and to reduce grazing pressure and overuse of unoccupied areas within pastures; this will probably increase gain per animal but may decrease gain  $\text{ha}^{-1}$  (Bement 1969).

#### Acknowledgments

M Ashby, J Thomas, S Clapp, T Smith, and T Kanode collected animal data at the CPER. Crow Valley Livestock Cooperative Inc provided the livestock. D Tripp, M Lindquist, L Savage, and B Flynn supplied the prairie dog colony area and abundance data. This research was supported in part by National Science Foundation Grants DEB 9632852 and DEB 0217631 for the Shortgrass Steppe Long-Term Ecological Research Project. We appreciate constructive comments by R Heitschmidt, J Truett, and C Slobodchikoff.

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Rozol in KS

Bill Jacobs t  
o John Hebert  
:

02/03/2011 04:23 PM

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History: This message has been replied to.

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The attachment is more than a few sentences, but it portrays as accurate and assessment of the issues as I could muster in the time available. From this, you should be able to draft a sentence or two for the letter that you are preparing.



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## Brief Assessment of Rozol Baiting Accuracy with Hand vs. Mechanical Application to Prairie Dog Burrows

The assessments by Charles Lee in his e-mail message of 12/7/10 to Judy Glass pertained to data taken from the Lee and Hyngstrom (2007) report of field efficacy trials with black-tailed prairie dogs (MRID Nos. 472677-01 and 473336-02). I have reviewed that report on two prior occasions and, for those reviews, extracted data on the accuracy of bait placements. Although summarized differently, my assessments and Lee's from 12/7/10 were based on the same numbers.

The Lee and Hyngstrom (2007) report states that one of its objectives was to evaluate "the amount of granules" of applied bait "that are moved to the ground surface, out of the burrows, by the normal activity of prairie dogs, predators and scavengers, or by other wildlife, livestock or domestic animals." To that end, samples of 50 treated burrows per test plot were examined 1, 2, 3, 4, 5, 6, and 7 days after bait was applied. To evaluate only the accuracy of the initial application, the burrows would have to have been monitored essentially immediately after bait was applied, although doing that would have run the risk of tipping off applicators as to which holes were being monitored and, therefore, at which holes they should be especially careful. However, the stated goal for this phase of post-treatment monitoring was not to assess accuracy of initial placement (which seems to have been assumed) but rather the extent to which unconsumed bait was moved from label-compliant placements at least 6 inches down prairie dog burrows to positions where they remained less than 6 inches down the holes or on the surface. Thus, the data collected do not necessarily reflect the extent to which initial placements might have resulted in quantities of bait being less than 6 inches deep.

Of the post-treatment intervals for which Lee and Hyngstrom (2007) report data on bait visible in or near prairie dog burrows, the Day-1 collection period fell closest to the time of application and, therefore, could be regarded as the interval most reflective of initial placement accuracy and least reflective of the effects of consumption and dispersal of bait.

The table on the next page shows selected Day-1 data segregated according to the application method(s) used at the various sites. Hand application reportedly was the sole treatment method at 4 sites. Three sites were treated using mechanical equipment only, and another 3 sites were treated in part by hand and in part using mechanical equipment. The small number of replications per treatment strategy limits the extent to which inferences might be drawn from the data, and the variability of results within treatment approaches limits the power of statistical analyses, especially parametric analyses. By visual inspection, it seems clear that the Day-1 results varied little within or between methods in terms of the percent of treated burrows around which bait was visible on the surface. There also was substantial overlap among treatments in the percent of treated burrows where no bait was visible. There possibly was a treatment-related effect regarding the percent of holes with bait less than 6 inches deep, which could reflect both noncompliant application and disturbance by animals and other factors. The three lowest scores for this determination, by far, were at 3 of the 4 sites that were baited only by hand. However, the 48% result for the fourth hand-baited site overlaps the results obtained for mechanical-only and hand-and-mechanical baiting and would create an error term in parametric



statistical analyses that would “swamp” a true effect. More replicates per treatment and post-treatment monitoring very close to the time of application would be needed to determine whether true hand baiting results in more accurate initial placements than mechanical baiting of the type used for the Lee and Hyngstrom (2007) trials.

Site	Application Method	% Holes with Visible Bait	% Holes with Visible Bait <6" deep	% Holes with Bait on Surface
Sallee	Hand only	48%	2%	2%
Hogan	Hand Only	28%	12%	6%
NE East Lashley	Hand Only	60%	6%	2%
Wiese East	Hand Only	70%	48%	0%
Ryan South	Hand & Mechanical	68%	44%	4%
NE West Faiman	Hand & Mechanical	54%	28%	4%
Wiese East	Hand & Mechanical	50%	40%	0%
Ryan Cemetery	Mechanical Only	64%	48%	4%
Sowers	Mechanical Only	36%	34%	0%
Magnani	Mechanical Only	62%	50%	0%

These data only reflect what was observed in the Lee and Hyngstrom (2007) trials, subject to the limitations discussed above. The data would not necessarily be predictive of what would occur under operational use by other applicators using similar or different application equipment. As discussed above, Lee and Hyngstrom’s Day-1 results might not represent the degree of initial baiting accuracy that occurred during their study.

William W. Jacobs

February 3, 2011





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF  
PREVENTION, PESTICIDES  
AND TOXIC SUBSTANCES

Ms. Judith Glass  
Pesticide and Fertilizer Programs  
Kansas Department of Agriculture  
109 SW 9<sup>th</sup> Street, 3<sup>rd</sup> Floor  
Topeka, KS 66612

FEB - 4 2011

Subject: Notification of a Special Local Need  
SLN No. KS100003; Rozol Prairie Dog Bait  
Date received by EPA: December 21, 2010

Dear Ms. Glass:

On January 23, 2008, the manufacturer of Rozol Prairie Dog Bait, Liphatech, Inc. ("Liphatech"), applied to register this product under section 3 of FIFRA. The application sought to consolidate six existing registrations for Rozol Prairie Dog Bait, previously issued by various states under FIFRA § 24(c), and furthermore to authorize use in several additional states. The label Liphatech proposed for registration, like the state-issued registrations, did not differentiate between hand application and mechanical application of bait, and thus would have permitted either mode of application if EPA had granted the registration as proposed by Liphatech. EPA did not approve the label as submitted by Liphatech, but approved the label conditional on Liphatech modifying the label in certain respects. Among the label modifications EPA required as a condition of registration, in May 2009, was the addition of language limiting Rozol Prairie Dog Bait to hand application. The effect of this label modification was to disallow mechanical application of the product. EPA's registration notice indicated that Liphatech's "release for shipment of the product constitutes acceptance of these conditions."

In light of the fact that EPA previously considered a section 3 registration for the mechanical application of Rozol Prairie Dog Bait, and EPA offered a section 3 registration only on the condition that mechanical application be removed from the label, EPA proposes to determine that Kansas' SLN registration of Rozol for mechanical application is not in accord with the purposes of FIFRA and therefore is invalid. EPA is offering Kansas advance notice of its intent to invalidate SLN KS-100003 in order to allow the State to provide information that would support the continuation of this product. If Kansas offers adequate data to demonstrate that the proposed change will not cause unreasonable adverse effects on the environment, that data could support a conclusion that the SLN registration is consistent with FIFRA.

Kansas' notification cover letter states that "mechanical baiting has been shown to be a safe and effective method of application." However, this statement is not adequately supported by the notification's supporting materials:

- The provided statistical analysis from the Lee and Hyngstrom (2007) study is not necessarily predictive of what would occur under normal, operational use by applicators using mechanical or

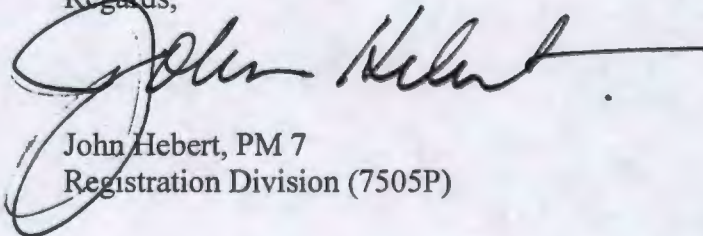


hand application. The analysis was based on monitoring data from a phase of the study that did not have the goal of assessing accuracy of bait placement.

- In the notification's cover letter it is stated that potential human error associated with hand application is less likely to occur with mechanical baiting (which) "has been shown to be reliable and to deliver a calibrated amount delivering the bait 6 inches into the burrow." The notification package did not contain any specific information on the types of mechanical application equipment available for prairie dog applications in Kansas. EPA cannot make a determination on the relative efficacy and accuracy of mechanical application compared to hand application without this information. An email dated January 18, 2011 sent to the Registration Division did provide a photo of a mechanical baiter. Based solely on simple observation and without any specific information on the baiter, we would question, for example, the accuracy of the bait placement (six inches underground) when it is applied mechanically approximately from 12 inches above the burrow entrance.
- We also have questions on the potential increase in exposure (i.e., acreage treated) from mechanical application. In a phone conversation with the Registration Division, Kansas indicated that there is no significant difference in the amount of acreage treated using mechanical application as compared with hand application. Kansas' claim is that both mechanical and hand application is done from a vehicle such as a truck or an ATV and that the only difference between the two applications is that the applicator must disembark from the vehicle when applying by hand. However, some of the letters of support included with the notification package claim that it is difficult to treat large acreage with only hand application. (For examples see letters from Alan Stevenson of the Stanton County Noxious Weed Department; Wallace County Board of County Commissioners; and Jeff Wilson, Hamilton County Extension Agent.)

In addition to the issues described above, respecting the potential impact of mechanical application, EPA notes that it has reason to question whether Kansas' expressed need for mechanical application of Rozol Prairie Dog Bait is truly a *local* need, and thus whether it qualifies as a basis to issue a valid SLN registration. As noted above, six states had previously issued SLN registrations for Rozol Prairie Dog Bait allowing mechanical application. In its notification letter, Kansas suggests the existence of local needs in connection with "[t]he reintroduction projects of the black-footed ferret in northwest Kansas," but it is EPA's understanding that there is no current local need for Rozol in connection with the operation of these reintroduction projects. In fact it is our understanding that in Kansas the U.S. Fish and Wildlife Service has requested that Rozol not be used for controlling prairie dogs that are associated with black-footed ferret reintroduction. This was one of the major reasons the U.S. Department of Agriculture, Animal and Plant Health Inspection Services' Wildlife Services declared a crisis exemption under FIFRA Section 18 for zinc phosphide on December 7, 2010. EPA solicits further explanation from Kansas as to why it believes the need for mechanical application of Rozol Prairie Dog Bait is local, rather than interregional, in character. If you have any questions regarding this letter you may contact me at (703) 308-6249 or by e-mail at [hebert.john@epa.gov](mailto:hebert.john@epa.gov).

Regards,



John Hebert, PM 7  
Registration Division (7505P)

cc: Thomas Schmit, Liphatech, Inc.



## PRECAUTIONARY STATEMENTS

### Hazard to Humans and Domestic Animals

**CAUTION:** Harmful if swallowed or absorbed through the skin because it may reduce the clotting ability of blood and cause bleeding. Keep away from children, domestic animals and pets. Do not get in eyes on skin or on clothing. All handlers (including applicators) must wear shoes plus socks, and gloves. Any person who retrieves carcasses or unused bait following application of this product must wear gloves.

**USER SAFETY REQUIREMENTS:** Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash hands thoroughly after applying bait and before eating, drinking, chewing gum, using tobacco or using the toilet and change into clean clothing.

**FIRST AID:** Have label when obtaining treatment advice.

If swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor.

If on skin: Take off contaminated clothing. Rinse skin with plenty of cool water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

**TREATMENT FOR PET POISONING:** If animal eats bait, call veterinarian at once.

**NOTE TO PHYSICIAN OR VETERINARIAN:** Anticoagulant Chlorophacinone: If swallowed, this material may reduce the clotting ability of the blood and cause bleeding. For humans or dogs that have ingested this product and/or have obvious poisoning symptoms (bleeding or prolonged prothrombin times), give Vitamin K<sub>1</sub> intramuscularly or orally.

**ENVIRONMENTAL HAZARDS:** This product is toxic to fish and wildlife. Dogs and other predatory and scavenging mammals and birds might be poisoned if they feed upon animals that have eaten this bait. Do not apply directly to water, or to areas where surface water is present. Do not contaminate water by cleaning of equipment or disposal of wastes. Runoff also may be hazardous to aquatic organisms in water adjacent to treated areas.

**ENDANGERED SPECIES CONSIDERATIONS: NOTICE:** It is a Federal offense to use any pesticide in a manner that results in the death of an endangered species. Use of this product may pose a hazard to endangered or threatened species. Do not use this product within prairie dog towns in the range of the black-footed ferret without first contacting endangered species specialists at a U.S. Fish and Wildlife Service office. Applicators may obtain information regarding the occurrence of endangered species and use limitations for this product by calling EPA's "Endangered Species Hotline" at 1-800-447-3813 to obtain an "Interim Measures" pamphlet for your county. You may also consult your local agricultural extension office or state pesticide lead agency to determine if there are any requirements for use of this product.

## RESTRICTED USE PESTICIDE DUE TO HAZARD TO NONTARGET ORGANISMS

For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's Certification.



Active Ingredient: chlorophacinone ..... 0.005%  
Inert Ingredients ..... 99.995%  
Total ..... 100.000%

EPA Reg. No. 7173-286

EPA Est. No. 7173-WI-1

## KEEP OUT OF REACH OF CHILDREN

**CAUTION:** See side panel for additional precautionary statements.

**LIPHA TECH®**

Liphatech, Inc.  
3600 W. Elm Street  
Milwaukee, WI 53209  
(414) 351-1476

**ACCEPTED**  
NET WEIGHT:

SEP 10 2010

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act,  
as amended, for the pesticide  
registered under  
EPA Reg. No. 7173-286

## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

**READ THIS LABEL** and follow all use directions and precautions. Only use for sites, pests, and application methods specified on this label.

**IMPORTANT:** Do not expose children, pets, or other nontarget animals to rodenticides. To help prevent accidents:

1. Store product not in use in a location out of reach of children and pets.
2. Dispose of product container, unused, spoiled and unconsumed bait as specified on this label.

**Use restrictions:** This product may only be used as follows:

1. **Sites/Pests:** Black-Tailed Prairie Dogs (*Cynomys ludovicianus*) on rangeland and adjacent noncrop areas.
  2. **States:** Colorado, Kansas, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas and Wyoming.
  3. **Application Method:** Hand application of bait, at least 6 inches down prairie dog burrows. This product may only be used in underground applications. Do not apply bait on or above ground level. Treat only active burrows.
  4. **Treatment Period:** Apply between October 1 and March 15 of the following year, when animals will most readily take the grain bait.
  5. **Non-Applicators:** Do not allow children, pets, domestic animals or persons not involved in the application to be in the area where the product is being applied.
  6. **Grazing Restriction:** Do not allow livestock to graze in treated areas for 14 days after treatment and when no bait is found above ground.
- Site Assessment:** Before applying this product, identify active prairie dog burrows by visual observation. The openings of active burrows will generally be free of leaves, seeds, other debris or spider webs, and will show freshly turned earth, and have prairie dog faces nearby.

**Application:** Apply 1/4 cup (53 grams or nearly 2 ounces) of bait at least 6 inches down active prairie dog burrows. Make sure no bait is left on the soil surface at the time of application. Applicator must retrieve and dispose of any bait that is spilled above ground or placed less than 6 inches down the burrow entrance.

**Follow-up:** Prairie dogs that have eaten this bait will begin to die off in 4 to 5 days after they eat a lethal amount. The applicator must return to the site within 4 days after bait application, and at 1 to 2 day intervals, to collect and properly dispose of any bait or dead or dying prairie dogs found on the surface. All carcasses found above ground must be collected and disposed of properly. Continue to collect and dispose of dead or dying prairie dogs and search for nontarget animals for at least two weeks, but longer if carcasses are still being found at that time. Carcass collections should occur in late afternoon, near sundown, to reduce the potential of nocturnal animals finding carcasses and dying animals. Bury carcasses on site in holes dug at least 18 inches deep or in inactive burrows (no longer being used by prairie dogs or other species) to avoid non-target animal scavenging. Burial includes covering and packing the hole or burrow with soil. If burial is not practical (due to frozen ground, etc) and other disposal methods are allowed by state and local authorities, collected carcasses may be disposed of by such other methods as insure that the carcasses are inaccessible to scavengers.

**Reapplication:** If prairie dog activity persists several weeks or months after the bait was applied, a second application may be made, by treating burrows in the same manner, time period and procedure as the first application. Follow all application, site assessment and follow-up directions and use restrictions as found above.

**WARRANTY:** To the extent consistent with applicable law, seller makes no warranty, expressed or implied, concerning the use of this product other than indicated on the label. Buyer assumes all risk of use and/or handling of this material when such use and/or handling is contrary to label instructions. (081910)

## STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal. **Pesticide Storage:** Store only in original container in a cool, dry place inaccessible to children and pets. Keep containers closed and away from other chemicals. **Pesticide Disposal:** Wastes resulting from the use of this product may be placed in trash or delivered to an approved waste disposal facility. **Container Handling:** Nonrefillable container. Do not reuse or refill this container. Dispose of empty container by placing in trash, at an approved waste disposal facility or by incineration or, if allowed by state and local authorities, by burning. If burned stay out of smoke.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF  
PREVENTION, PESTICIDES  
AND TOXIC SUBSTANCES

Ms. Judith Glass  
Pesticide and Fertilizer Programs  
Kansas Department of Agriculture  
109 SW 9<sup>th</sup> Street, 3<sup>rd</sup> Floor  
Topeka, KS 66612

FEB - 4 2011

Subject: Notification of a Special Local Need  
SLN No. KS100003; Rozol Prairie Dog Bait  
Date received by EPA: December 21, 2010

Dear Ms. Glass:

On January 23, 2008, the manufacturer of Rozol Prairie Dog Bait, Liphatech, Inc. ("Liphatech"), applied to register this product under section 3 of FIFRA. The application sought to consolidate six existing registrations for Rozol Prairie Dog Bait, previously issued by various states under FIFRA § 24(c), and furthermore to authorize use in several additional states. The label Liphatech proposed for registration, like the state-issued registrations, did not differentiate between hand application and mechanical application of bait, and thus would have permitted either mode of application if EPA had granted the registration as proposed by Liphatech. EPA did not approve the label as submitted by Liphatech, but approved the label conditional on Liphatech modifying the label in certain respects. Among the label modifications EPA required as a condition of registration, in May 2009, was the addition of language limiting Rozol Prairie Dog Bait to hand application. The effect of this label modification was to disallow mechanical application of the product. EPA's registration notice indicated that Liphatech's "release for shipment of the product constitutes acceptance of these conditions."

In light of the fact that EPA previously considered a section 3 registration for the mechanical application of Rozol Prairie Dog Bait, and EPA offered a section 3 registration only on the condition that mechanical application be removed from the label, EPA proposes to determine that Kansas' SLN registration of Rozol for mechanical application is not in accord with the purposes of FIFRA and therefore is invalid. EPA is offering Kansas advance notice of its intent to invalidate SLN KS-100003 in order to allow the State to provide information that would support the continuation of this product. If Kansas offers adequate data to demonstrate that the proposed change will not cause unreasonable adverse effects on the environment, that data could support a conclusion that the SLN registration is consistent with FIFRA.

Kansas' notification cover letter states that "mechanical baiting has been shown to be a safe and effective method of application." However, this statement is not adequately supported by the notification's supporting materials:

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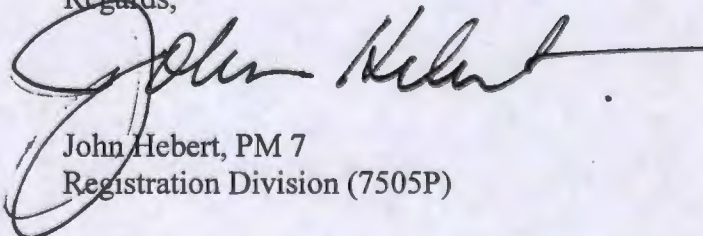


hand application. The analysis was based on monitoring data from a phase of the study that did not have the goal of assessing accuracy of bait placement.

- In the notification's cover letter it is stated that potential human error associated with hand application is less likely to occur with mechanical baiting (which) "has been shown to be reliable and to deliver a calibrated amount delivering the bait 6 inches into the burrow." The notification package did not contain any specific information on the types of mechanical application equipment available for prairie dog applications in Kansas. EPA cannot make a determination on the relative efficacy and accuracy of mechanical application compared to hand application without this information. An email dated January 18, 2011 sent to the Registration Division did provide a photo of a mechanical baiter. Based solely on simple observation and without any specific information on the baiter, we would question, for example, the accuracy of the bait placement (six inches underground) when it is applied mechanically approximately from 12 inches above the burrow entrance.
- We also have questions on the potential increase in exposure (i.e., acreage treated) from mechanical application. In a phone conversation with the Registration Division, Kansas indicated that there is no significant difference in the amount of acreage treated using mechanical application as compared with hand application. Kansas' claim is that both mechanical and hand application is done from a vehicle such as a truck or an ATV and that the only difference between the two applications is that the applicator must disembark from the vehicle when applying by hand. However, some of the letters of support included with the notification package claim that it is difficult to treat large acreage with only hand application. (For examples see letters from Alan Stevenson of the Stanton County Noxious Weed Department; Wallace County Board of County Commissioners; and Jeff Wilson, Hamilton County Extension Agent.)

In addition to the issues described above, respecting the potential impact of mechanical application, EPA notes that it has reason to question whether Kansas' expressed need for mechanical application of Rozol Prairie Dog Bait is truly a *local* need, and thus whether it qualifies as a basis to issue a valid SLN registration. As noted above, six states had previously issued SLN registrations for Rozol Prairie Dog Bait allowing mechanical application. In its notification letter, Kansas suggests the existence of local needs in connection with "[t]he reintroduction projects of the black-footed ferret in northwest Kansas," but it is EPA's understanding that there is no current local need for Rozol in connection with the operation of these reintroduction projects. In fact it is our understanding that in Kansas the U.S. Fish and Wildlife Service has requested that Rozol not be used for controlling prairie dogs that are associated with black-footed ferret reintroduction. This was one of the major reasons the U.S. Department of Agriculture, Animal and Plant Health Inspection Services' Wildlife Services declared a crisis exemption under FIFRA Section 18 for zinc phosphide on December 7, 2010. EPA solicits further explanation from Kansas as to why it believes the need for mechanical application of Rozol Prairie Dog Bait is local, rather than interregional, in character. If you have any questions regarding this letter you may contact me at (703) 308-6249 or by e-mail at [hebert.john@epa.gov](mailto:hebert.john@epa.gov).

Regards,



John Hebert, PM 7  
Registration Division (7505P)

cc: Thomas Schmit, Liphatech, Inc.



K1000-3

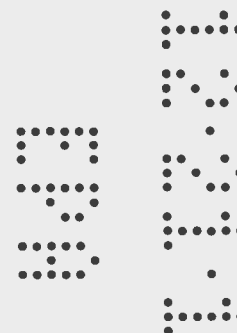


Mark Parkinson, Governor  
Joshua Svaty, Secretary

www.ksda.gov

December 14, 2010

Document Processing Desk (SLN)  
Office of Pesticide Programs – 7504P  
U.S. Environmental Protection Agency  
Ariel Rios Building  
1200 Pennsylvania Avenue  
Washington, DC 20460  
(703-305-7406)



Dear SLN Team Members:

The Kansas Department of Agriculture has accepted for Special Local Need (SLN) registration of the pesticide product Rozol® Prairie Dog Bait, (EPA Registration Number 7173-286). The purpose of this SLN is to provide the farmers and ranchers of western Kansas the ability to apply product by use of a mechanical bait application machine in addition to the hand placement of bait described on the Section 3 label. The SLN is for the period of December 14, 2010 to March 15, 2011.

The stocking rate for livestock is defined as the number of acres necessary to feed one animal unit, or steer, without overgrazing. The stocking rate in western Kansas ranges from 10-12 acres per head of cattle. The market value of livestock in the area where prairie dogs occur is in excess of \$4,476,557,000 (incomplete data). Prairie dogs occupy approximately 130,000 acres of rangeland in Kansas. One acre of rangeland can support a prairie dog density of 25, with the range typically given as 5-35 prairie dogs/ acre, or a stocking rate of 250 prairie dogs per 10-12 acres. To put this in terms of land use, 10 to 12 acres of rangeland are needed to support 1 steer **OR** 250 prairie dogs. If these numbers for individual animal stocking rates, or combination of animals for stocking rates are exceeded, overgrazing of the land will severely damage vegetation and lead to wind and water erosion of the soil.

Prairie dogs will typically make 30-50 6 inch burrows and mounds/acre. If rangeland has been used to support livestock or is planned to be used for livestock, it is important to control prairie dogs to prevent over grazing. Mechanical baiting becomes a necessity when the frequency of burrow occurrence is considered. Given 30-50 burrows or mounds per acre, would average one burrow per every 800 to 1,200 feet. The use of ATVs with mechanical baiting equipment allows applicators to effectively move over the area and place a precise quantity of bait directly into prairie dog burrows.

Mechanical baiting has been shown to be a safe and effective method of application. The baiting season is typically late fall and winter when prairie dog natural food sources are at their lowest and there is greater bait acceptance. Weather and applicator safety is an issue. On warm days, hand baiting has the potential of exposing the applicator to venomous snake bites and increased

Pesticide and Fertilizer Program  
109 SW 9<sup>TH</sup> ST., Topeka, KS 66612 • (785) 296-3786 • Fax (785) 296-0673  
www.ksda.gov



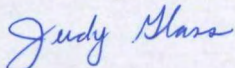
pesticide exposure. Human error related to fatigue and cold weather exposure may increase the amount of exposed bait on the surface instead of being placed at least 6 inches into the prairie dog burrow. Baiting by mechanical means has been shown to be reliable and to deliver a calibrated amount delivering the bait 6 inches into the burrow. Original data submitted in support of the environmental effects study prior to the product obtaining a section 3 label was based on hand and mechanical data. Recent review of the data submitted by Charles Lee, Kansas State University Extension Specialist –Wildlife, show that hand baiting for prairie dogs does not appear to be statistically different from mechanical baiting for potential environmental effects.

The reintroduction projects of the black-footed ferret in northwest Kansas rely on the ability to manage black-tailed prairie dog complexes. Mechanical baiting is the most efficient and cost effective way to accomplish the task of managing the prairie dog complexes and reestablishing the ferret so that the species could be removed from the state and federal endangered species list. All other required determinations have been defined and the items required for EPA approval of the requested SLN are attached.

The Kansas Department of Agriculture has established the effective date of the SLN as December 14, 2010, and the assigned SLN number **KS-100002**. Attached documents include a copy of a completed EPA Form 8570-25, 24 (c) Supplemental Label, federal label and the MSDS for Rozol® Prairie Dog Bait. It appears that an unreasonable adverse effects determination is not required for this special local need, according to the Guidance on FIFRA 24(c) Registrations.

If you have any questions, please contact me at 785-296-3454.

Sincerely,



Judy Glass  
Pesticide Registration Specialist

Cc: Dan Tuggle, Pesticide Enforcement Chief  
Gary Meyer, Pesticide Fertilizer Program Manager

List of Attachments:

SLN application

Registrant letter of support

Rozol label EPA Reg. No. 7173-286

Rozol Kansas SLN label KS-100002

MSDS

Endangered Species for Kansas

Field Efficacy and Hazards of Rozol Bait for Controlling Black-Tailed Prairie Dogs (*Cynomys ludovicianus*)

Statistical analysis of data

Letters of support (94)



Mr. Dan Tuggle  
Kansas Department of Agriculture  
109 SW 9<sup>th</sup> Street  
Topeka, KS 66612-1280

6 December 2010

Re: Application for registration of  
a new FIFRA Sec. 24(c) special local need product

Dear Mr. Tuggle,

The enclosed application is submitted in order to register a "special local need" product for control of Black-tailed Prairie Dogs in Kansas. The parent product of this proposed SLN is Rozol Prairie Dog Bait, EPA Reg. No.; 7173-286, which is already registered in Kansas. The proposed LSN label would allow the bait to be applied using mechanical bait placement machines.

Justification for mechanical baiting of Rozol Prairie Dog Bait: Based on a study conducted by Charles Lee, Kansas State University Wildlife Biologist, the use of mechanical baiters to apply Rozol Prairie Dog Bait results in more consistent control of the black-tailed prairie dogs than does hand baiting. Hand baiting can and does result in licensed applicators not treating every active burrow due to the fatigue of walking large prairie dog towns. Mechanical baiting devices are calibrated and reliable allowing licensed applicators to place the precise amount of product in each active burrow. These baiters better insure the product is placed down into the prairie dog's burrow, significantly reducing bait exposure to the environment. The mechanical baiting devices are critical when treating a large prairie dog colony, by providing thorough, economical and precise application of Rozol Prairie Dog Bait, and resulting in maximum control.

These are control results that cannot be provided by the most common alternative prairie dog control product zinc phosphide. Zinc phosphide bait has odor and bad taste, which requires pre-baiting with untreated grain to entice the target pest to eat the toxic bait. The untreated grain, broadcast on the ground surface, attracts pheasants, turkeys, migrating geese, song birds and other grain-eating birds. These birds then consume the toxic grain bait when it is applied, potentially resulting in significant nontarget deaths.

This application is supported by the above-referenced study, "Field Efficacy and Hazards of Rozol Bait for Controlling Black-tailed Prairie Dogs" by Charles Lee, of Kansas State University and Scott Hygnstrom of the University of Nebraska. In this study, more than 11,000 prairie dog burrows on more than 140 acres. Four of the 10 treated plots were baited by hand, three were treated by mechanical bait placement machines, and three were treated by a combination of both hand and machine baiting.



Mr. Dan Tuggle  
6 December 2010  
Page 2 of 2

Included in this application package are:

1. This cover letter;
2. Support letters from the user community requesting registration of this product;
3. A completed federal SLN application form;
4. Proposed SLN label;
5. EPA-stamped label for EPA Reg. No. 7173-286;
6. Efficacy data: "Field Efficacy and Hazards of Rozol Bait for Controlling Black-tailed Prairie Dogs" by Charles Lee of Kansas State University and Scott Hygnstrom of the University of Nebraska

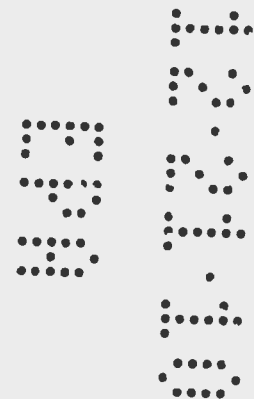
This SLN application is submitted at the request of the user community. We have included copies of 55 support letters from individuals, and additional support letters from the Noxious Weed Departments from Seward, Stanton, Logan, Rawlins, Kearney and Cheyenne counties, the County Boards of Commissioners from Wichita, Thomas, Wallace, Logan, Rawlins and Greeley counties, K State Extension offices in Stanton and Hamilton counties, Charlie Lee, KSU Extension Vertebrate Specialist, and Mr. Ralph Ostermeyer, Senator 40<sup>th</sup> District.

Thank you for your attention to this matter, and please feel free to contact me directly if you have questions or concerns regarding this application.

Sincerely



Thomas J Schmit  
Manager of Regulatory Affairs





United States Environmental Protection Agency  
Office of Pesticide Programs, Registration Division (7505C)  
Washington, DC 20460



**Application for/Notification of State Registration  
of a Pesticide To Meet a Special Local Need**  
(Pursuant to section 24(c) of the Federal Insecticide,  
Fungicide, and Rodenticide Act, as Amended)

For State Use Only  
Registration No. Assigned  
Date Registration Issued

<b>1. Name and Address of Applicant for Registration</b> Liphatech, Inc. 3600 W. Elm Street Milwaukee, WI 53209		<b>2. Product is (Check one)</b> <input checked="" type="checkbox"/> EPA-Registered <input type="checkbox"/> New (not EPA-registered) Attach EPA Form 8570-4, Confidential Statement of Formula for new products.		<b>EPA Registration Number</b> 7173-242
<b>4. Product Name</b> Rozol Prairie Dog Bait		<b>3. Active Ingredient(s) in Product</b> chlorophacinone		<b>EPA Company Number</b> 7173-WI-1
<b>6. Type of Registration (Give details in Item 13 or on a separate page, properly identified and attached to this form):</b> <input type="checkbox"/> a. To permit use of a new product. <input checked="" type="checkbox"/> b. To amend EPA registrations for one or more of the following purposes: <input type="checkbox"/> (1) To permit use on additional crops or animals. <input type="checkbox"/> (2) To permit use at additional sites. <input type="checkbox"/> (3) To permit use against additional pests. <input checked="" type="checkbox"/> (4) To permit use of additional application techniques or equipment. <input type="checkbox"/> (5) To permit use at different application rates. <input type="checkbox"/> (6) Other (specify below)		<b>5. If this is a food/feed use, a tolerance or other Federal clearance is required. Cite appropriate regulations in 40 CFR Part 180, 185, and/or 186. Not a food or feed use</b> .....		
<b>10. Has FIFRA section 24(c) registration for this use of the product ever, by another State, been (check appropriate box(es), if known):</b> <input type="checkbox"/> Sought <input type="checkbox"/> Issued <input type="checkbox"/> Denied <input type="checkbox"/> Revoked If any of the above are checked, list State in Item 13 below. <input checked="" type="checkbox"/> No FIFRA section 24(c) Action		<b>7. Nature of Special Local Need (check one)</b> <input type="checkbox"/> There is no pesticide product registered by EPA for such use. <input checked="" type="checkbox"/> There is no EPA-registered pesticide product which, under the conditions of sale within the State, would be as safe and/or as efficacious for such use within the terms and conditions of EPA registration. <input type="checkbox"/> An appropriate EPA-registered pesticide product is not available.		
<b>11. Endangered Species Act: (Give details in Item 13 or on a separate page, properly identified and attached to this form)</b> See attached Identify the counties where this pesticide will be used, if Statewide, indicate "all." Provide a list of Federally protected endangered/threatened species which occur in the areas of proposed use. All		<b>8. If this registration is an amendment to an EPA-registered product, is it for a "new use" as defined in 40 CFR 152.3?</b> <input type="checkbox"/> Yes (discuss in Item 13 below) <input checked="" type="checkbox"/> No		
<b>12. Indicate use status of Special Local Need, i.e., planned dates of use:</b> From: 12/14/2010 To: 03/15/2011		<b>9. Has an EPA Registration or Experimental Use Permit for this chemical ever been (check applicable box(es), if known):</b> <input checked="" type="checkbox"/> Sought <input checked="" type="checkbox"/> Issued <input type="checkbox"/> Denied <input type="checkbox"/> Cancelled <input type="checkbox"/> Suspended <input checked="" type="checkbox"/> Registration <input checked="" type="checkbox"/> Experimental Use Permit <input type="checkbox"/> No Previous Permit Action		
<b>Signature of Applicant or Authorized Representative</b> 		<b>13. Comments (attach additional sheet, if needed)</b> The proposed SLN would allow Rozol Prairie Dog Bait to be applied using mechanical application equipment, in addition to the "hand baiting" technique specified on the product label.		
<b>Title</b> Manager of Regulatory Affairs		<b>Determination by State Agency</b> This registration is for a Special Local Need and is being issued in accordance with section 24(c) of FIFRA, as amended. To the best of our knowledge, the information above is correct, except as noted in "Comments" below or in attachments.		
<b>Telephone Number</b> (414) 410-7230		<b>Date</b> Dec 10, 2010		
<b>Name, Title, and Address of State Agency Official</b> Judith L. Glass Pesticide and Fertilizer Program Kansas Department of Agriculture 109 SW 9th Street - 3rd Floor Topeka, KS 66612		<b>Comments (by State Agency Only)</b>		<b>Received by EPA</b>
<b>Title</b> Pesticide Registration Specialist		<b>Telephone Number</b> 785-296-3454		<b>Date</b> 12/14/2010



## PRECAUTIONARY STATEMENTS

Hazard to Humans and Domestic Animals

**CAUTION:** Harmful if swallowed or absorbed through the skin because it may reduce the clotting ability of blood and cause bleeding. Keep away from children, domestic animals and pets. Do not get in eyes on skin or on clothing. All handlers (including applicators) must wear shoes plus socks, and gloves. Any person who retrieves carcasses or unused bait following application of this product must wear gloves.

**USER SAFETY REQUIREMENTS:** Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash hands thoroughly after applying bait and before eating, drinking, chewing gum, using tobacco or using the toilet and change into clean clothing.

**FIRST AID:** Have label when obtaining treatment advice.

**If swallowed:** Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor.

**If on skin:** Take off contaminated clothing. Rinse skin with plenty of cool water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

**TREATMENT FOR PET POISONING:** If animal eats bait, call veterinarian at once.

**NOTE TO PHYSICIAN OR VETERINARIAN:** Anticoagulant Chlorophacinone: If swallowed, this material may reduce the clotting ability of the blood and cause bleeding. For humans or dogs that have ingested this product and/or have obvious poisoning symptoms (bleeding or prolonged prothrombin times), give Vitamin K<sub>1</sub> intramuscularly or orally.

**ENVIRONMENTAL HAZARDS:** This product is toxic to fish and wildlife. Dogs and other predatory and scavenging mammals and birds might be poisoned if they feed upon animals that have eaten this bait. Do not apply directly to water, or to areas where surface water is present. Do not contaminate water by cleaning of equipment or disposal of wastes. Runoff also may be hazardous to aquatic organisms in water adjacent to treated areas.

**ENDANGERED SPECIES CONSIDERATIONS:** NOTICE: It is a Federal offense to use any pesticide in a manner that results in the death of an endangered species. Use of this product may pose a hazard to endangered or threatened species. Do not use this product within prairie dog towns in the range of the black-footed ferret without first contacting endangered species specialists at a U.S. Fish and Wildlife Service office. Applicators may obtain information regarding the occurrence of endangered species and use limitations for this product by calling EPA's "Endangered Species Hotline" at 1-800-447-3813 to obtain an "Interim Measures" pamphlet for your county. You may also consult your local agricultural extension office or state pesticide lead agency to determine if there are any requirements for use of this product.

## RESTRICTED USE PESTICIDE

### • DUE TO HAZARD TO NONTARGET ORGANISMS

For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's Certification.



Active Ingredient: chlorophacinone .....	0.005%
Inert Ingredients .....	99.995%
Total .....	100.000%

EPA Reg. No. 7173-286

EPA Est. No. 7173-WI-1

## KEEP OUT OF REACH OF CHILDREN

**CAUTION:** See side panel for additional precautionary statements.

**LIPHATECH®**

Liphatech, Inc.  
3600 W. Elm Street  
Milwaukee, WI 53209  
(414) 351-1476

ACCEPTED

NET WEIGHT:

SEP 10 2010

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act,  
as amended, for the pesticide

7173-286

## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

**READ THIS LABEL** and follow all use directions and precautions. Only use for sites, pests, and application methods specified on this label.

**IMPORTANT:** Do not expose children, pets, or other nontarget animals to rodenticides. To help prevent accidents:

1. Store product not in use in a location out of reach of children and pets.
2. Dispose of product container, unused, spoiled and unconsumed bait as specified on this label.

**Use restrictions:** This product may only be used as follows:

1. **Sites/Pests:** Black-Tailed Prairie Dogs (*Cynomys ludovicianus*) on rangeland and adjacent noncrop areas.
2. **States:** Colorado, Kansas, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas and Wyoming.
3. **Application Method:** Hand application of bait, at least 6 inches down prairie dog burrows. This product may only be used in underground applications. Do not apply bait on or above ground level. Treat only active burrows.
4. **Treatment Period:** Apply between October 1 and March 15 of the following year, when animals will most readily take the grain bait.
5. **Non-Applicators:** Do not allow children, pets, domestic animals or persons not involved in the application to be in the area where the product is being applied.
6. **Grazing Restriction:** Do not allow livestock to graze in treated areas for 14 days after treatment and when no bait is found above ground.

**Site Assessment:** Before applying this product, identify active prairie dog burrows by visual observation. The openings of active burrows will generally be free of leaves, seeds, other debris or spider webs, and will show freshly turned earth, and have prairie dog feces nearby.

**Application:** Apply 1/4 cup (53 grams or nearly 2 ounces) of bait at least 6 inches down active prairie dog burrows. Make sure no bait is left on the soil surface at the time of application. Applicator must retrieve and dispose of any bait that is spilled above ground or placed less than 6 inches down the burrow entrance.

**Follow-up:** Prairie dogs that have eaten this bait will begin to die off in 4 to 5 days after they eat a lethal amount. The applicator must return to the site within 4 days after bait application, and at 1 to 2 day intervals, to collect and properly dispose of any bait or dead or dying prairie dogs found on the surface. All carcasses found above ground must be collected and disposed of properly. Continue to collect and dispose of dead or dying prairie dogs and search for nontarget animals for at least two weeks, but longer if carcasses are still being found at that time. Carcass collections should occur in late afternoon, near sundown, to reduce the potential of nocturnal animals finding carcasses and dying animals. Bury carcasses on site in holes dug at least 18 inches deep or in inactive burrows (no longer being used by prairie dogs or other species) to avoid non-target animal scavenging. Burial includes covering and packing the hole or burrow with soil. If burial is not practical (due to frozen ground, etc) and other disposal methods are allowed by state and local authorities, collected carcasses may be disposed of by such other methods as insure that the carcasses are inaccessible to scavengers.

**Reapplication:** If prairie dog activity persists several weeks or months after the bait was applied, a second application may be made, by treating burrows in the same manner, time period and procedure as the first application. Follow all application, site assessment and follow-up directions and use restrictions as found above.

**WARRANTY:** To the extent consistent with applicable law, seller makes no warranty, expressed or implied, concerning the use of this product other than indicated on the label. Buyer assumes all risk of use and/or handling of this material when such use and/or handling is contrary to label instructions. (081910)

## STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal. **Pesticide Storage:** Store only in original container in a cool, dry place inaccessible to children and pets. Keep containers closed and away from other chemicals. **Pesticide Disposal:** Wastes resulting from the use of this product may be placed in trash or delivered to an approved waste disposal facility. **Container Handling:** Nonrefillable container. Do not reuse or refill this container. Dispose of empty container by placing in trash, at an approved waste disposal facility or by incineration or, if allowed by state and local authorities, by burning. If burned stay out of smoke.





# Species Reports

Environmental Conservation Online System

## Listings and occurrences for Kansas

### Notes:

- This report shows the listed species associated in some way with this state.
- This list does not include experimental populations and similarity of appearance listings.
- This list includes non-nesting sea turtles and whales in State/Territory coastal waters.
- This list includes species or populations under the sole jurisdiction of the National Marine Fisheries Service.
- Click on the highlighted scientific names below to view a Species Profile for each listing.

### Summary of Animals listings

Animal species listed in this state and that occur in this state (9 species)

Status ( <a href="#">javascript:launch('/tess_public/html/db-status.html');</a> )	Species
E	Bat, gray ( <a href="#"><i>Myotis grisescens</i></a> ( <a href="#">/speciesProfile/profile/speciesProfile.action?spcode=A04J</a> ))
E	Beetle, American burying ( <a href="#"><i>Nicrophorus americanus</i></a> ( <a href="#">/speciesProfile/profile/speciesProfile.action?spcode=I028</a> ))
E	Crane, whooping except where EXPN ( <a href="#"><i>Grus americana</i></a> ( <a href="#">/speciesProfile/profile/speciesProfile.action?spcode=B003</a> ))
T	Madtom, Neosho ( <a href="#"><i>Noturus placidus</i></a> ( <a href="#">/speciesProfile/profile/speciesProfile.action?spcode=E03S</a> ))
T	Plover, piping except Great Lakes watershed ( <a href="#"><i>Charadrius melodus</i></a> ( <a href="#">/speciesProfile/profile/speciesProfile.action?spcode=B079</a> ))
T	Shiner, Arkansas River Arkansas R. Basin ( <a href="#"><i>Notropis girardi</i></a> ( <a href="#">/speciesProfile/profile/speciesProfile.action?spcode=E05X</a> ))
E	Shiner, Topeka ( <a href="#"><i>Notropis topeka</i></a> (=tristis) ( <a href="#">/speciesProfile/profile/speciesProfile.action?spcode=E07R</a> ))
E	Sturgeon, pallid ( <a href="#"><i>Scaphirhynchus albus</i></a> ( <a href="#">/speciesProfile/profile/speciesProfile.action?spcode=E06X</a> ))
	Tern, least interior non ( <a href="#"><i>Sterna antillarum</i></a> )



## Animal species listed in this state that do not occur in this state (2 species)

<u>Status (javascript:launch ('/tess_public/html/db-status.html'));</u>	Species
E	Bat, Indiana ( <u><i>Myotis sodalis</i></u> ( <a href="/speciesProfile/profile/speciesProfile.action?scode=A000">/speciesProfile/profile/speciesProfile.action?scode=A000</a> ))
E	Wolf, gray Lower 48 States, except MN and where EXPN. Mexico. ( <u><i>Canis lupus</i></u> ( <a href="/speciesProfile/profile/speciesProfile.action?scode=A00D">/speciesProfile/profile/speciesProfile.action?scode=A00D</a> ))

## Animal listed species occurring in this state that are not listed in this state (2 species)

<u>Status (javascript:launch ('/tess_public/html/db-status.html'));</u>	Species
E	Curlew, Eskimo ( <u><i>Numenius borealis</i></u> ( <a href="/speciesProfile/profile/speciesProfile.action?scode=B01A">/speciesProfile/profile/speciesProfile.action?scode=B01A</a> ))
E	Ferret, black-footed entire population, except where EXPN ( <u><i>Mustela nigripes</i></u> ( <a href="/speciesProfile/profile/speciesProfile.action?scode=A004">/speciesProfile/profile/speciesProfile.action?scode=A004</a> ))

## Summary of Plant listings

## Plant species listed in this state and that occur in this state (2 species)

<u>Status (javascript:launch ('/tess_public/html/db-status.html'));</u>	Species
T	Milkweed, Mead's ( <u><i>Asclepias meadii</i></u> ( <a href="/speciesProfile/profile/speciesProfile.action?scode=Q1T6">/speciesProfile/profile/speciesProfile.action?scode=Q1T6</a> ))
T	Orchid, western prairie fringed ( <u><i>Platanthera praeclara</i></u> ( <a href="/speciesProfile/profile/speciesProfile.action?scode=Q2YD">/speciesProfile/profile/speciesProfile.action?scode=Q2YD</a> ))

## Plant species listed in this state that do not occur in this state (1 species)

<u>Status (javascript:launch ('/tess_public/html/db-status.html'));</u>	Species
E	Clover, running buffalo ( <u><i>Trifolium stoloniferum</i></u> ( <a href="/speciesProfile/profile/speciesProfile.action?scode=Q2RE">/speciesProfile/profile/speciesProfile.action?scode=Q2RE</a> ))

Last updated: December 3, 2010

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# MATERIAL SAFETY DATA SHEET

## SECTION 1 PRODUCT & COMPANY IDENTIFICATION

### Rozol' Prairie Dog Bait

EPA Reg. No. 7173-286, Restricted Use Pesticide

Other Designation: Anticoagulant rodenticide with Chlorophacinone

Manufacturer: Liphatech, Inc.  
3600 W. Elm Street, Milwaukee, WI 53209

Emergency Phone: 414-351-1476 Monday-Friday, 8:00 am-4:30 pm CST  
After Hours: Call CHEMTREC at 1-800-424-9300

## SECTION 2 INGREDIENT INFORMATION

Hazardous Ingredient	CAS Number	OSHA PEL	ACGIH TLV	ACGIH STEL
Chlorophacinone	3691-35-8	Not assigned	Not assigned	Not assigned

## SECTION 3 HAZARDS IDENTIFICATION

**Emergency Overview:** May be harmful if swallowed or absorbed through the skin, because this material may reduce the clotting ability of the blood and cause bleeding.

**Primary Entry Routes:** Oral (swallowing), dermal (absorption through skin)

**Acute Effects (Signs and Symptoms of Overexposure):**

- Eyes: May cause temporary eye irritation.
- Skin: May be harmful if absorbed through skin. Symptoms of toxicity include lethargy, loss of appetite, reduced blood clotting ability and bleeding.
- Inhalation: Due to this product's solid form, inhalation is unlikely.

- Ingestion: May be harmful if swallowed. Symptoms of toxicity include lethargy, loss of appetite, reduced clotting ability of blood, and bleeding.

**Chronic Effects:** Prolonged and/or repeated exposure to small amounts of product can produce cumulative toxicity. Symptoms of toxicity include lethargy, loss of appetite, reduced clotting ability of blood, and bleeding.

**Medical Conditions Aggravated by Exposure:** Bleeding disorders

**Target Organs:** Blood

**Carcinogenicity:** Contains no known or suspected carcinogens.

**HMIS:** Health - 2, Flammability - 0, Reactivity - 0

## SECTION 4 FIRST AID MEASURES

**Eyes:** Flush with water. Get medical attention if irritation persists.

**Skin:** Wash with soap and water. Get medical attention if irritation persists.

**Inhalation:** If inhaled, remove person to fresh air and Get medical attention.

**Ingestion:** Call a physician or poison control center immediately. Have the product label available for medical personnel to read.

Induce vomiting under the direction of medical personnel. Drink 1 or 2 glasses of water and induce vomiting by touching the back of throat with finger. If syrup of Ipecac is available, give 1 tablespoon (15 ml) followed by 1 or 2 glasses of water. If vomiting does not occur within 20 minutes, repeat this dosage once. Do not induce vomiting or give anything by mouth to an unconscious person.

**Note to Physician:** This rodenticide contains an anticoagulant ingredient. If ingested, administer vitamin K<sub>1</sub> intramuscularly or orally, as indicated in bishydroxycoumarin overdoses. Repeat as necessary based on monitoring of prothrombin times.

For information on this pesticide product (including health concerns, medical emergencies, or pesticide incidents) call the National Pesticide Information Center at 1-800-858-7378.

## SECTION 5 FIRE FIGHTING MEASURES

Flash Point:	None
Autoignition Temp.:	Not determined
Explosive Limits:	LEL: Not applicable UEL: Not applicable
Extinguishing Media:	Use media suitable for the surrounding fire
Unusual Fire or Explosion Hazards:	None known
Fire Fighting Instructions:	Firefighters should wear self-contained breathing apparatus (full facepiece) and full protective clothing. Contain runoff to prevent pollution.



## SECTION 6 ACCIDENTAL RELEASE MEASURES

**Large Spill/Leak Procedures:** Isolate and contain spill. Limit access to the spill area to necessary personnel. Do not allow spilled material to enter sewers, streams or other waters. Scoop up spilled material and place in a closed, labeled container for use or disposal.

**Small Spills:** Scoop up material for use according to label instructions.

## SECTION 7 STORAGE AND HANDLING

**Storage Requirements:** Store in original container in a cool, dry area out of reach of children, pets and domestic animals. Do not contaminate water, food or feed. Keep container tightly closed. Do not remove or destroy the product label.

**Handling Precautions:** Read the entire product label before using this rodenticide. Carefully follow all cautions, directions and use restrictions on the label. Avoid contact with eyes, skin or clothing.

## SECTION 8 EXPOSURE CONTROLS/ PERSONAL PROTECTION

**Ventilation:** Special ventilation is not required for the normal handling and use of this product when following the label instructions.

**Protective Clothing/Equipment:** Wear gloves when handling bait.

**Respirator:** None required when used according to label instructions.

**Contaminated Equipment:** Damaged or unwanted bait stations and bait holders should be wrapped in paper and discarded in trash.

**Comments:** Never eat, drink or smoke in work areas. Practice good personal hygiene after using this product. Wash arms, hands and face with soap and water after handling this product, and before eating and smoking. Launder contaminated clothing separate from street clothes.

## SECTION 9 PHYSICAL & CHEMICAL PROPERTIES

Physical State:	Solid particles	Water Solubility:	Negligible
Color:	Green	% Volatile (Volume):	Not applicable
Odor:	Raw grain odor	Specific Gravity:	1.25 g/cc
Melting Point:	Not available	Vapor Pressure:	Not applicable
Boiling Point:	Not applicable	Vapor Density:	Not applicable
Freezing Point:	Not applicable	pH:	Not applicable

## SECTION 10 STABILITY AND REACTIVITY

**Stability:** Stable

**Conditions to Avoid:** None

**Hazardous Polymerization:** Will not occur

**Chemical Incompatibilities:** None

**Hazardous Products of Decomposition:** Oxides of carbon

## SECTION 11 TOXICOLOGICAL INFORMATION

Eye Effects/Eye Irritation:	Mild, transient irritant
Acute Oral Effects:	LD <sub>50</sub> (oral-rat): >5000 mg/kg
Acute Inhalation Effects:	No data available
Acute Dermal Effects:	LD <sub>50</sub> (dermal-rabbit): >2000 mg/kg
Skin Irritation:	Non-Irritating
Skin Sensitization:	Not a skin sensitizer

## SECTION 12 ECOLOGICAL INFORMATION

This product is toxic to fish and wildlife. Do not apply this product directly to water, where surface water is present or to intertidal areas below the mean high water mark. Carefully follow label cautions and instructions to reduce hazards to children, pets and non-target wildlife.

## SECTION 13 DISPOSAL CONSIDERATIONS

**Disposal:** Wastes resulting from the use of this product according to the label instructions must be disposed of as specified on the product label.

**RCRA Waste Status:** This product is not regulated as a hazardous waste under RCRA. State and local regulation may affect the disposal of this product. Consult your state or local environmental agency for disposal of waste generated other than by use according to label instructions.

## SECTION 14 TRANSPORT INFORMATION

**Transportation Data (49 CFR):** This product is not regulated as a hazardous material for all modes of transportation within the U.S.

**Hazard Class:** Not applicable **ID No.:** Not applicable

## SECTION 15 REGULATORY INFORMATION

**TSCA:** All components of this product are listed on the TSCA inventory.

**SARA Section 313:** Contains no reportable components.

**OSHA Hazard Classification:** Chronic health hazard.

**Proposition 65:** Contains no components subject to warning requirement.

## SECTION 16 OTHER INFORMATION

**Prepared by:** T. Schmit

**Date:** 7/8/2009

Information presented on this Material Safety Data Sheet is believed to be accurate at the time of publication. No warranty, expressed or implied, is made with regard to this information. This information may not be adequate for every application, and the user must determine the suitability of this information due to the manner/conditions of use, storage or local regulation.



## RESTRICTED USE PESTICIDE

**DUE TO POTENTIAL SECONDARY TOXICITY TO NONTARGET ORGANISMS**

For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification.

### 24(c) SUPPLEMENTAL LABEL

**FOR DISTRIBUTION AND USE ONLY WITHIN THE STATE OF KANSAS**

This label valid until March 15, 2011, or until otherwise amended, disapproved or withdrawn

# rozol® PRAIRIE DOG BAIT

EPA SLN No. KS-100002

EPA Registration No. 7173-286

EPA Est No. 7173-WI-1

### FOR APPLICATION BY MECHANICAL BAIT PLACEMENT MACHINE TO CONTROL BLACK-TAILED PRAIRIE DOGS (*Cynomys ludovicianus*) ON RANGELAND AND ADJACENT NONCROP AREAS

#### DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling, which includes this supplemental label and the label for Rozol Prairie Dog Bait, EPA Reg. No. 7173-286. Both of these labels must be in the possession of the user at the time of application. Follow all directions of this supplemental label and all applicable directions, restrictions and precautions on the label for EPA Reg. No. 7173-286.

**Use restrictions:** This product may only be used in underground applications to control black-tailed prairie dogs (*Cynomys ludovicianus*) on rangeland and noncrop areas in Kansas. Apply between October 1 and March 15 of the following year, when animals will most readily take the grain bait. This product is toxic to nontarget wildlife and fish. Do not allow bait to be placed outside of the prairie dog burrow. Do not allow children, pets, domestic animals or persons not involved in the application to be in the area where the product is being applied. Do not allow livestock to graze in treated areas for 14 days after treatment and when no bait is found above ground. Before applying this product, identify active prairie dog burrows by visual observation. The openings of active burrows will generally be free of leaves, seeds, other debris or spider webs, and will show freshly turned earth, and have prairie dog feces nearby.

**Application:** Apply 1/4 cup (53 grams or nearly 2 ounces) of bait at least 6 inches down active prairie dog burrows. Application may be made a mechanical bait application machine that is designed, constructed and operated in a manner that ensures that bait is properly placed at least 6 inches down the prairie dog burrows.

**Make sure no bait is left on the soil surface at the time of application.** Applicator must retrieve and dispose of any bait that is spilled above ground or placed less than 6 inches down the burrow entrance. Mechanical bait application machines must be calibrated to ensure that the proper amount of bait is dispensed into each prairie dog burrow.

**Follow-up:** The applicator must return to the site within 4 days after bait application, and at 1 to 2 day intervals, to collect and properly dispose of any bait or dead or dying prairie dogs found on the surface. The applicator must follow all label instructions for conducting carcass searches, proper disposal of carcasses, and reapplication.

24(c) registrant

**LIPHATECH**

Liphatech, Inc.  
3600 W. Elm Street  
Milwaukee, WI 53209  
(414) 351-1476





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

December 29, 2010

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

Kansas Department of Agriculture  
Pesticide and Fertilizer Program  
109 SW 9th Street - 3rd floor  
Topeka, KS 666123600

ATTN: Judith Glass, Specialist

Dear State Agency:

The Office of Pesticide Programs acknowledges receipt of the Section 24(c) application/notification for KS100003.

The package is being forwarded to the Product Manager for review.

To ensure that the Agency receives proper notification of your 24(c) applications/notifications it is necessary to use the correct mailing address. All new 24(c) applications should be sent to the mailing address:

Document Processing Desk (SLN)  
Office of Pesticide Programs -7504P  
U.S. Environmental Protection Agency  
Ariel Rios Building  
1200 Pennsylvania Avenue, N.W.  
Washington, DC 20460

If you have any questions concerning the administrative screening of the package please contact the Front End Unit at (703)305-5780.

Sincerely,

A handwritten signature in blue ink, appearing to read "Barbara Russell".

Front End Processing Staff

Information Services Branch

Information Technology & Resources Management Division





Mark Parkinson, Governor  
Joshua Svaty, Secretary

[www.ksda.gov](http://www.ksda.gov)

December 28, 2010

Document Processing Desk (SLN)  
Office of Pesticide Programs – 7504P  
U.S. Environmental Protection Agency  
Ariel Rios Building  
1200 Pennsylvania Avenue  
Washington, DC 20460  
(703-305-7406)

Subject: Special Local Needs KS 10003 Application dated December 14, 2010, Rozol Prairie  
Dog Bait

Dear Ms Purnell:

Thank you for contacting the Kansas Department of Agriculture regarding the incorrect EPA  
Registration Number on EPA Form 8570-25. The registration number has been corrected on the  
attached copy.

Please do not hesitate to contact this office should you have additional questions.

Sincerely,

Judy Glass  
Registration Specialist  
Kansas Department of Agriculture  
Pesticide and Fertilizer Program



## Statistical Analysis

95%  
Confidence  
Interval



## Glass, Judy

---

**From:** Charlie Lee [cleeksu@gmail.com]  
**Sent:** Tuesday, December 07, 2010 3:26 PM  
**To:** Glass, Judy  
**Cc:** Tuggle, Dan  
**Subject:** Re: KDA contact information  
**Attachments:** Copy of Rozol Bait For Controlling Prairie Dogs (6).xlsx

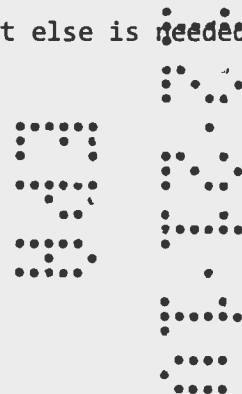
Judy,

I left a message for you earlier today. I'm not sure what information you need from me to proceed with the 24-C or emergency exemption for the mechanical application of Rozol. Keep in mind that this trial was not specifically designed to determine if one method of application was better than the other. This may be more inferential statistics than hypothesis testing but summarizes data from 70 trial days with 50 burrows each day.

I have put the data that was submitted to Liphatech and EPA into a spreadsheet with the treatment (type of dispensing) broken out. When I analyzed this data using SAS JMP oneway ANOVA no significant differences are found at the  $p < .10$  level between the means of the number of locations bait is visible nor the % of burrows where bait is visible, nor the distance from the surface that bait may have been visible, nor the approximate number of grains of bait that is visible.

Although the means of the number of locations where bait is visible is greater for the mechanical application, there is no statistical difference between hand application, machine application or the combined methods. I trust this should answer the question that hand application is not more precise than machine application when using bait visibility or distance of the bait from the surface or the amount of bait visible.

Attached is the spreadsheet and the JMP file. Please let me know what else is needed.





	A	B	C	D	E	F	G	H	I
1	<b>Summary of Field Efficacy Data of Rozol Bait For Controlling Black-Tailed Prairie Dogs</b>								
2									
3									
4				Number of Locations Bait Visible	% burrows bait visible	Number of Locations Visible Bait is			
5	Site	Site	Day	(Out of 50 Burrows)		At Surface	%	0-6"	%
6	Trial 1: Sallee	1	1	24	48	1	2	0	0
7	Trial 1: Sallee	1	2	4	8	0	0	0	0
8	Trial 1: Sallee	1	3	2	4	0	0	0	0
9	Trial 1: Sallee	1	4	3	6	1	2	0	0
10	Trial 1: Sallee	1	5	2	4	0	0	1	2
11	Trial 1: Sallee	1	6	3	6	2	4	0	0
12	Trial 1: Sallee	1	7	1	2	1	2	0	0
13	Trial 1: Hogan	2	1	14	28	3	6	3	6
14	Trial 1: Hogan	2	2	10	20	1	2	5	10
15	Trial 1: Hogan	2	3	4	8	1	2	0	0
16	Trial 1: Hogan	2	4	3	6	1	2	0	0
17	Trial 1: Hogan	2	5	2	4	0	0	0	0
18	Trial 1: Hogan	2	6	2	4	1	2	0	0
19	Trial 1: Hogan	2	7	0	0	0	0	0	0
20	Trial 2: South	3	1	34	68	2	4	20	40
21	Trial 2: South	3	2	31	62	2	4	22	44
22	Trial 2: South	3	3	29	58	2	4	23	46
23	Trial 2: South	3	4	20	40	0	0	17	34
24	Trial 2: South	3	5	18	36	0	0	15	30
25	Trial 2: South	3	6	12	24	0	0	8	16
26	Trial 2: South	3	7	10	20	0	0	8	16
27	Trial 2: Cemetery	4	1	32	64	2	4	22	44
28	Trial 2: Cemetery	4	2	26	52	1	2	19	38
29	Trial 2: Cemetery	4	3	21	42	0	0	18	36
30	Trial 2: Cemetery	4	4	16	32	1	2	11	22
31	Trial 2: Cemetery	4	5	15	30	0	0	11	22
32	Trial 2: Cemetery	4	6	13	26	0	0	11	22



	A	B	C	D	E	F	G	H	I
33	Trial 2: Cemetary	4	7	12	24	0	0	10	20
34	Trial 2: Lashley	5	1	30	60	1	2	2	4
35	Trial 2: Lashley	5	2	12	24	0	0	4	8
36	Trial 2: Lashley	5	3	5	10	0	0	1	2
37	Trial 2: Lashley	5	4	3	6	0	0	0	0
38	Trial 2: Lashley	5	5	3	6	0	0	0	0
39	Trial 2: Lashley	5	6	2	4	0	0	1	2
40	Trial 2: Lashley	5	7	2	4	0	0	1	2
41	Trial 2: Faiman	6	1	27	54	2	4	12	24
42	Trial 2: Faiman	6	2	27	54	2	4	14	28
43	Trial 2: Faiman	6	3	12	24	0	0	11	22
44	Trial 2: Faiman	6	4	5	10	0	0	5	10
45	Trial 2: Faiman	6	5	4	8	0	0	3	6
46	Trial 2: Faiman	6	6	4	8	0	0	4	8
47	Trial 2: Faiman	6	7	3	6	0	0	3	6
48	Trial 3: Wiese East	7	1	25	50	0	0	20	40
49	Trial 3: Wiese East	7	2	18	36	0	0	15	30
50	Trial 3: Wiese East	7	3	9	18	0	0	6	12
51	Trial 3: Wiese East	7	4	5	10	0	0	3	6
52	Trial 3: Wiese East	7	5	4	8	0	0	0	0
53	Trial 3: Wiese East	7	6	3	6	0	0	1	2
54	Trial 3: Wiese East	7	7	2	4	0	0	1	2
55	Trial 3: Wiese West	8	1	35	70	0	0	24	48
56	Trial 3: Wiese West	8	2	31	62	0	0	20	40
57	Trial 3: Wiese West	8	3	31	62	0	0	20	40
58	Trial 3: Wiese West	8	4	10	20	0	0	7	14
59	Trial 3: Wiese West	8	5	5	10	0	0	5	10
60	Trial 3: Wiese West	8	6	2	4	0	0	2	4
61	Trial 3: Wiese West	8	7	2	4	0	0	2	4
62	Trial 3: Sowers	9	1	18	36	0	0	17	34
63	Trial 3: Sowers	9	2	14	28	1	2	12	24
64	Trial 3: Sowers	9	3	1	2	0	0	1	2
65	Trial 3: Sowers	9	4	1	2	0	0	1	2



	A	B	C	D	E	F	G	H	I
66	Trial 3: Sowers	9	5	1	2	0	0	1	2
67	Trial 3: Sowers	9	6	1	2	0	0	1	2
68	Trial 3: Sowers	9	7	0	0	0	0	0	0
69	Trial 3: Magnani	10	1	31	62	0	0	25	50
70	Trial 3: Magnani	10	2	27	54	0	0	22	44
71	Trial 3: Magnani	10	3	14	28	0	0	13	26
72	Trial 3: Magnani	10	4	10	20	0	0	9	18
73	Trial 3: Magnani	10	5	7	14	0	0	7	14
74	Trial 3: Magnani	10	6	5	10	0	0	5	10
75	Trial 3: Magnani	10	7	3	6	0	0	3	6



	J	K	L	M	N	O	P	Q	R	S	T
1											
2											
3											
4	:	Approximate Number of Grains Visible:							Dispense Method Used:	Carcass found	
5	>6"	%	<25	%	25-100	%	>100	%	1=Manual 2=Mechanical 3= Both		
6	23	23	12	12	6	12	6	12	1		
7	4	4	1	1	3	6	0	0	1		
8	2	2	0	0	2	4	0	0	1		
9	2	2	1	1	1	2	1	2	1		
10	1	1	1	1	0	0	1	2	1		
11	1	1	2	2	0	0	1	2	1		
12	0	0	1	1	0	0	0	0	1		
13	8	8	10	10	2	4	2	4	1		
14	4	4	6	6	4	8	0	0	1		
15	3	3	4	4	0	0	0	0	1		
16	2	2	3	3	0	0	0	0	1		
17	2	2	2	2	0	0	0	0	1		
18	1	1	2	2	0	0	0	0	1		
19	0	0	0	0	0	0	0	0	1		
20	12	12	9	9	10	20	15	30	3		
21	7	7	15	15	7	14	9	18	3		
22	4	4	13	13	9	18	7	14	3		
23	3	3	18	18	2	4	0	0	3		
24	3	3	16	16	2	4	0	0	3		
25	4	4	12	12	0	0	0	0	3		
26	2	2	10	10	0	0	0	0	3		
27	8	8	6	6	8	16	18	36	2		
28	6	6	6	6	6	12	13	26	2		
29	3	3	6	6	4	8	11	22	2		
30	4	4	9	9	5	10	2	4	2		
31	4	4	9	9	4	8	2	4	2		
32	2	2	8	8	5	10	0	0	2		



	J	K	L	M	N	O	P	Q	R	S	T
33	2	2	7	7	5	10	0	0	2		
34	27	27	20	20	5	10	5	10	1		
35	8	8	10	10	2	4	0	0	1		
36	4	4	4	4	1	2	0	0	1		
37	3	3	3	3	0	0	0	0	1		
38	3	3	3	3	0	0	0	0	1		
39	1	1	2	2	0	0	0	0	1		
40	1	1	2	2	0	0	0	0	1		
41	13	13	13	13	6	12	8	16	3		
42	11	11	11	11	8	16	8	16	3		
43	1	1	4	4	6	12	2	4	3		
44	0	0	5	5	0	0	0	0	3		
45	1	1	4	4	0	0	0	0	3		
46	0	0	4	4	0	0	0	0	3		
47	0	0	3	3	0	0	0	0	3		
48	5	5	21	21	4	8	0	0	3		
49	3	3	14	14	4	8	0	0	3		
50	1	1	7	7	0	0	0	0	3		
51	2	2	4	4	1	2	0	0	3		
52	1	1	1	1	0	0	0	0	3		
53	2	2	2	2	1	2	0	0	3		
54	1	1	1	1	1	2	0	0	3		
55	11	11	25	25	10	20	0	0	1		
56	11	11	21	21	10	20	0	0	1		
57	11	11	21	21	9	18	0	0	1		
58	3	3	7	7	3	6	0	0	1		
59	0	0	3	3	2	4	0	0	1		
60	0	0	1	1	1	2	0	0	1		
61	0	0	1	1	1	2	0	0	1		
62	1	1	15	15	3	6	0	0	2		
63	1	1	13	13	1	2	0	0	2		
64	0	0	0	0	1	2	0	0	2		
65	0	0	1	1	0	0	0	0	2		

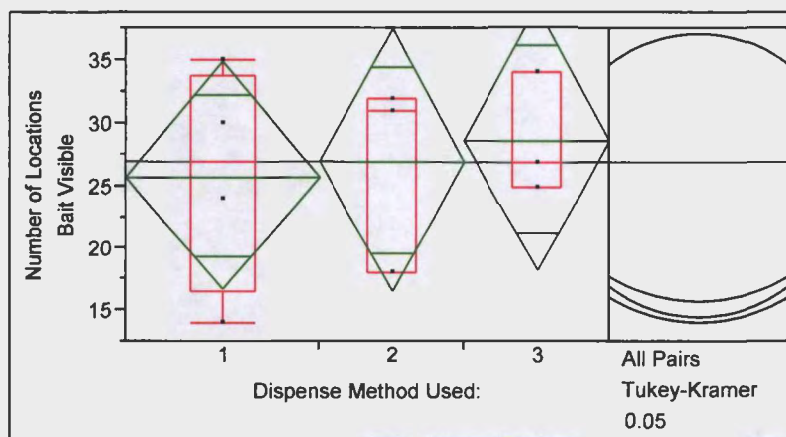


	J	K	L	M	N	O	P	Q	R	S	T
66	0	0	1	1	0	0	0	0	2		
67	0	0	1	1	0	0	0	0	2		
68	0	0	0	0	0	0	0	0	2		
69	6	6	16	16	13	26	2	4	2		
70	5	5	13	13	12	24	2	4	2		
71	1	1	4	4	8	16	2	4	2		
72	1	1	3	3	7	14	0	0	2		
73	0	0	2	2	5	10	0	0	2		
74	0	0	3	3	2	4	0	0	2		
75	0	0	2	2	1	2	0	0	2		



Data Table=Day=1,Linked Subset=This subset is linked to Untitled Rozol bait,Day=1

## Oneway Analysis of Number of Locations Bait Visible By Dispense Method Used: Day=1



### Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	14	14	16.5	27	33.75	35	35
2	18	18	18	31	32	32	32
3	25	25	25	27	34	34	34

### Oneway Anova Summary of Fit

Rsquare	0.034233
Adj Rsquare	-0.2417
Root Mean Square Error	7.666408
Mean of Response	27
Observations (or Sum Wgts)	10

### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	14.58333	7.2917	0.1241	0.8852
Error	7	411.41667	58.7738		
C. Total	9	426.00000			

### Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	25.7500	3.8332	16.686	34.814
2	3	27.0000	4.4262	16.534	37.466
3	3	28.6667	4.4262	18.200	39.133

Std Error uses a pooled estimate of error variance

### Means Comparisons

#### Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha			
	2.94498	0.05			
Abs(Dif)-LSD			3	2	1
3			-18.4344	-16.7677	-14.3271
2			-16.7677	-18.4344	-15.9938



Abs(Dif)-LSD	3	2	1
1	-14.3271	-15.9938	-15.9646

Positive values show pairs of means that are significantly different.

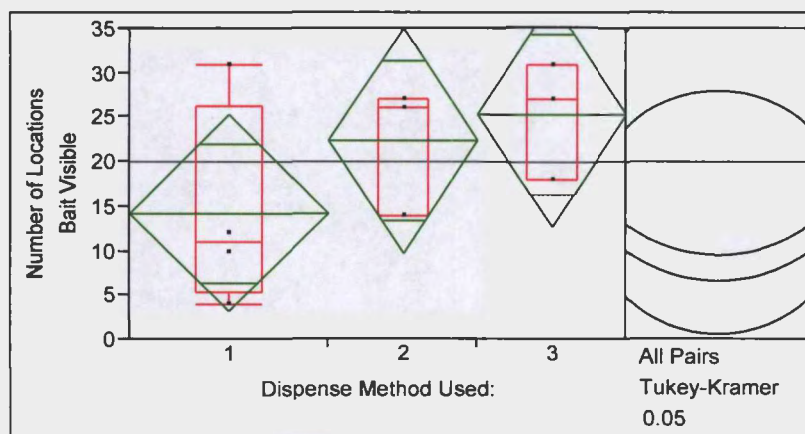
Level		Mean
3	A	28.666667
2	A	27.000000
1	A	25.750000

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
3	1	2.916667	5.855316	-14.3271	20.16044	0.8745	
3	2	1.666667	6.259596	-16.7677	20.10104	0.9619	
2	1	1.250000	5.855316	-15.9938	18.49377	0.9753	

Data Table=Day=2,Linked Subset=This subset is linked to Untitled Rozol bait,Day=2

### Oneway Analysis of Number of Locations Bait Visible By Dispense Method Used: Day=2



### Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	4	4	5.5	11	26.25	31	31
2	14	14	14	26	27	27	27
3	18	18	18	27	31	31	31

### Oneway Anova Summary of Fit

Rsquare	0.279805
Adj Rsquare	0.074035
Root Mean Square Error	9.27426
Mean of Response	20
Observations (or Sum Wgts)	10

### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	233.91667	116.958	1.3598	0.3170
Error	7	602.08333	86.012		
C. Total	9	836.00000			



## Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	14.2500	4.6371	3.285	25.215
2	3	22.3333	5.3545	9.672	34.995
3	3	25.3333	5.3545	12.672	37.995

Std Error uses a pooled estimate of error variance

## Means Comparisons

### Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha		
	2.94498	0.05		
Abs(Dif)-LSD		3	2	1
3		-22.3006	-19.3006	-9.77692
2		-19.3006	-22.3006	-12.7769
1		-9.77692	-12.7769	-19.3128

Positive values show pairs of means that are significantly different.

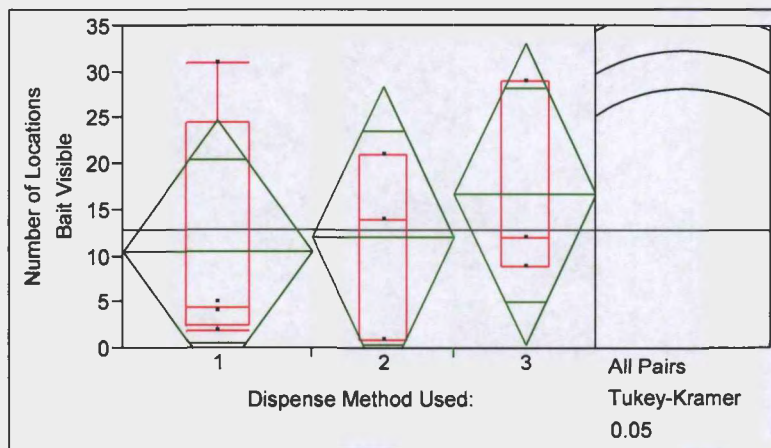
Level	Mean
3	25.333333
2	22.333333
1	14.250000

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
3	1	11.08333	7.083333	-9.7769	31.94359	0.3207	
2	1	8.08333	7.083333	-12.7769	28.94359	0.5213	
3	2	3.00000	7.572402	-19.3006	25.30055	0.9181	

Data Table=Day=3, Linked Subset=This subset is linked to Untitled Rozol bait, Day=3

## Oneway Analysis of Number of Locations Bait Visible By Dispense Method Used: Day=3



## Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	2	2	2.5	4.5	24.5	31	31
2	1	1	1	14	21	21	21



Level	Minimum	10%	25%	Median	75%	90%	Maximum
3	9	9	9	12	29	29	29

## Oneway Anova Summary of Fit

Rsquare	0.063394
Adj Rsquare	-0.20421
Root Mean Square Error	11.97418
Mean of Response	12.8
Observations (or Sum Wgts)	10

## Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	67.9333	33.967	0.2369	0.7951
Error	7	1003.6667	143.381		
C. Total	9	1071.6000			

## Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	10.5000	5.9871	-3.657	24.657
2	3	12.0000	6.9133	-4.347	28.347
3	3	16.6667	6.9133	0.319	33.014

Std Error uses a pooled estimate of error variance

## Means Comparisons

### Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha		
	2.94498	0.05		
Abs(Dif)-LSD		3	2	1
3		-28.7927	-24.126	-20.7664
2		-24.126	-28.7927	-25.4331
1		-20.7664	-25.4331	-24.9352

Positive values show pairs of means that are significantly different.

Level	Mean
3	A 16.666667
2	A 12.000000
1	A 10.500000

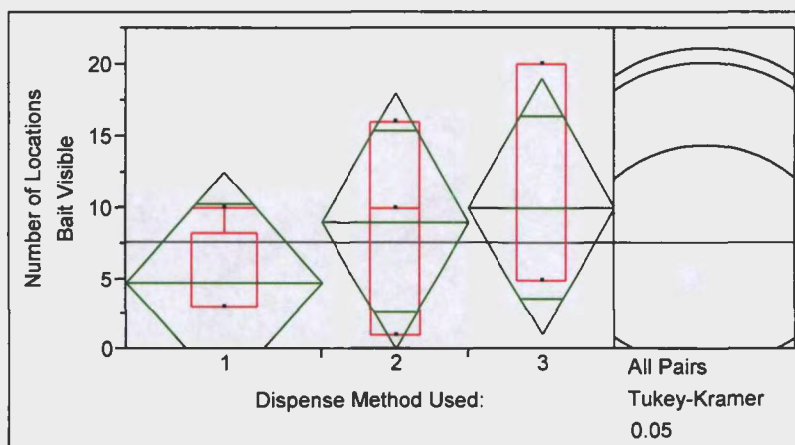
Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
3	1	6.166667	9.145430	-20.7664	33.09975	0.7852	
3	2	4.666667	9.776876	-24.1260	33.45935	0.8840	
2	1	1.500000	9.145430	-25.4331	28.43309	0.9853	

Data Table=Day=4,Linked Subset=This subset is linked to Untitled Rozol bait,Day=4



# Oneway Analysis of Number of Locations Bait Visible By Dispense Method Used: Day=4



## Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	3	3	3	3	8.25	10	10
2	1	1	1	10	16	16	16
3	5	5	5	5	20	20	20

## Oneway Anova Summary of Fit

Rsquare	0.156145
Adj Rsquare	-0.08496
Root Mean Square Error	6.554715
Mean of Response	7.6
Observations (or Sum Wgts)	10

## Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	55.65000	27.8250	0.6476	0.5520
Error	7	300.75000	42.9643		
C. Total	9	356.40000			

## Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	4.7500	3.2774	-3.000	12.500
2	3	9.0000	3.7844	0.051	17.949
3	3	10.0000	3.7844	1.051	18.949

Std Error uses a pooled estimate of error variance

## Means Comparisons

### Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha			
	2.94498	0.05			
Abs(Dif)-LSD			3	2	1
3			-15.7612	-14.7612	-9.49328
2			-14.7612	-15.7612	-10.4933
1			-9.49328	-10.4933	-13.6496



Positive values show pairs of means that are significantly different.

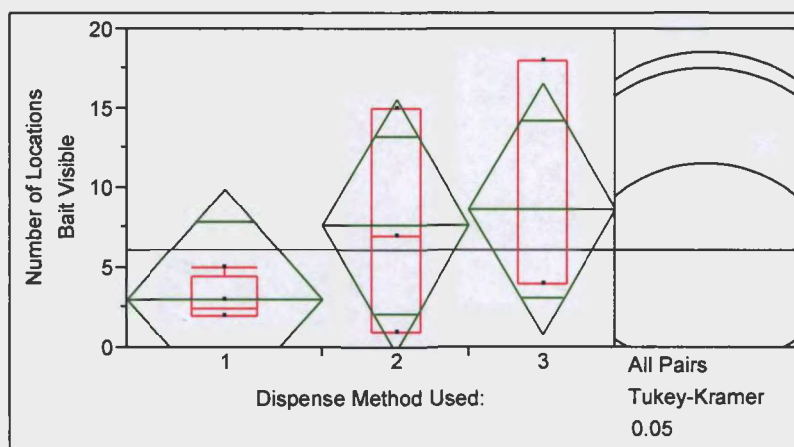
Level		Mean
3	A	10.000000
2	A	9.000000
1	A	4.750000

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
3	1	5.250000	5.006246	-9.4933	19.99328	0.5724	
2	1	4.250000	5.006246	-10.4933	18.99328	0.6868	
3	2	1.000000	5.351902	-14.7612	16.76123	0.9810	

Data Table=Day=5,Linked Subset=This subset is linked to Untitled Rozol bait,Day=5

### Oneway Analysis of Number of Locations Bait Visible By Dispense Method Used: Day=5



### Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	2	2	2	2.5	4.5	5	5
2	1	1	1	7	15	15	15
3	4	4	4	4	18	18	18

### Oneway Anova Summary of Fit

Rsquare	0.217902
Adj Rsquare	-0.00555
Root Mean Square Error	5.798193
Mean of Response	6.1
Observations (or Sum Wgts)	10

### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	65.56667	32.7833	0.9751	0.4231
Error	7	235.33333	33.6190		
C. Total	9	300.90000			

### Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
-------	--------	------	-----------	-----------	-----------



Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	3.00000	2.8991	-3.855	9.855
2	3	7.66667	3.3476	-0.249	15.582
3	3	8.66667	3.3476	0.751	16.582

Std Error uses a pooled estimate of error variance

## Means Comparisons

### Comparisons for all pairs using Tukey-Kramer HSD

q\* 2.94498  
Alpha 0.05

Abs(Dif)-LSD	3	2	1
3	-13.9421	-12.9421	-7.375
2	-12.9421	-13.9421	-8.375
1	-7.375	-8.375	-12.0742

Positive values show pairs of means that are significantly different.

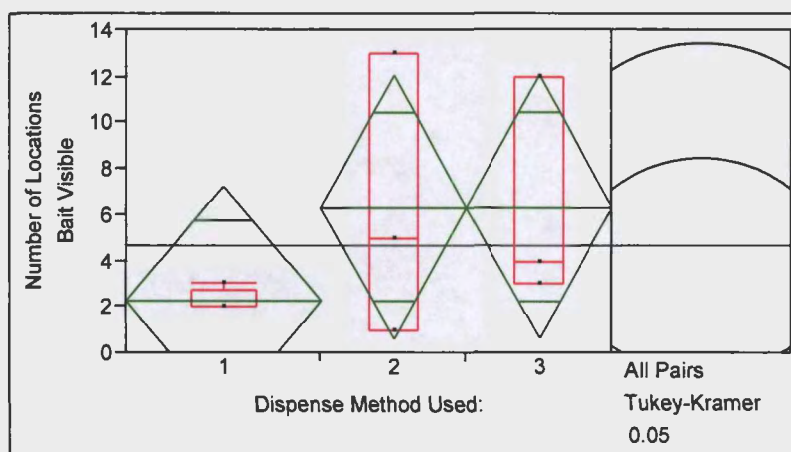
Level		Mean
3	A	8.666667
2	A	7.666667
1	A	3.000000

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
3	1	5.666667	4.428443	-7.3750	18.70833	0.4490	
2	1	4.666667	4.428443	-8.3750	17.70833	0.5696	
3	2	1.000000	4.734205	-12.9421	14.94213	0.9758	

Data Table=Day=6,Linked Subset=This subset is linked to Untitled Rozol bait,Day=6

## Oneway Analysis of Number of Locations Bait Visible By Dispense Method Used: Day=6



## Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	2	2	2	2	2.75	3	3
2	1	1	1	5	13	13	13
3	3	3	3	4	12	12	12



## Oneway Anova Summary of Fit

Rsquare	0.243855
Adj Rsquare	0.027814
Root Mean Square Error	4.210248
Mean of Response	4.7
Observations (or Sum Wgts)	10

## Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	40.01667	20.0083	1.1287	0.3759
Error	7	124.08333	17.7262		
C. Total	9	164.10000			

## Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	2.25000	2.1051	-2.728	7.228
2	3	6.33333	2.4308	0.585	12.081
3	3	6.33333	2.4308	0.585	12.081

Std Error uses a pooled estimate of error variance

## Means Comparisons


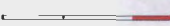

### Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha			
	2.94498	0.05			
Abs(Dif)-LSD			2	3	1
2			-10.1238	-10.1238	-5.38663
3			-10.1238	-10.1238	-5.38663
1			-5.38663	-5.38663	-8.76748

Positive values show pairs of means that are significantly different.

Level	Mean
2	A 6.333333
3	A 6.333333
1	A 2.250000

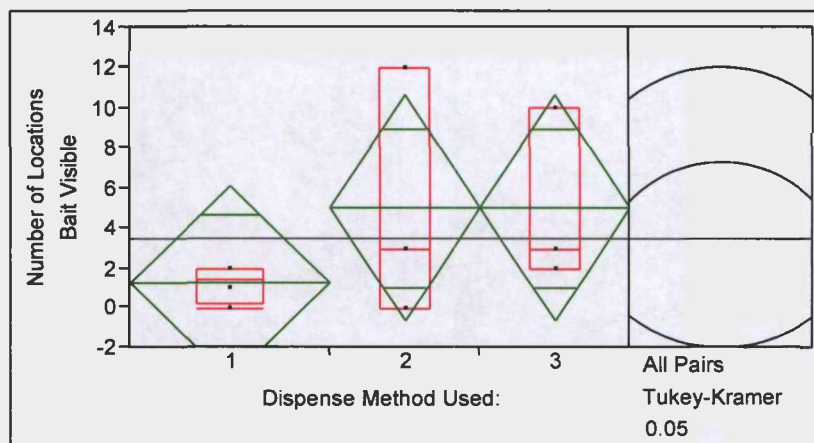
Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
2	1	4.083333	3.215630	-5.3866	13.55329	0.4539	
3	1	4.083333	3.215630	-5.3866	13.55329	0.4539	
3	2	0.000000	3.437653	-10.1238	10.12381	1.0000	

Data Table=Day=7, Linked Subset=This subset is linked to Untitled Rozol bait, Day=7



# Oneway Analysis of Number of Locations Bait Visible By Dispense Method Used: Day=7



## Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	0.25	1.5	2	2	2
2	0	0	0	3	12	12	12
3	2	2	2	3	10	10	10

## Oneway Anova Summary of Fit

Rsquare	0.221311
Adj Rsquare	-0.00117
Root Mean Square Error	4.118772
Mean of Response	3.5
Observations (or Sum Wgts)	10

## Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	33.75000	16.8750	0.9947	0.4167
Error	7	118.75000	16.9643		
C. Total	9	152.50000			

## Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	1.25000	2.0594	-3.620	6.120
2	3	5.00000	2.3780	-0.623	10.623
3	3	5.00000	2.3780	-0.623	10.623

Std Error uses a pooled estimate of error variance

## Means Comparisons

### Comparisons for all pairs using Tukey-Kramer HSD



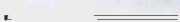
	q*	Alpha		
	2.94498	0.05		
Abs(Dif)-LSD		2	3	1
2		-9.90385	-9.90385	-5.51421
3		-9.90385	-9.90385	-5.51421
1		-5.51421	-5.51421	-8.57699



Positive values show pairs of means that are significantly different.

Level		Mean
2	A	5.0000000
3	A	5.0000000
1	A	1.2500000

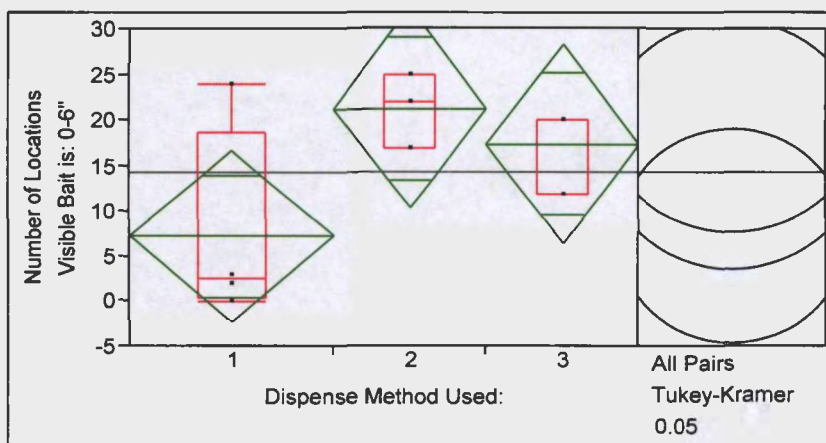
Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
2	1	3.750000	3.145764	-5.51421	13.01421	0.4941	
3	1	3.750000	3.145764	-5.51421	13.01421	0.4941	
3	2	0.000000	3.362964	-9.90385	9.90385	1.0000	



Data Table=Day=1,Linked Subset=This subset is linked to Untitled Rozol bait,Day=1

# **Oneway Analysis of Number of Locations Visible Bait is: 0-6" By Dispense Method Used: Day=1**



## **Quantiles**

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	0.5	2.5	18.75	24	24
2	17	17	17	22	25	25	25
3	12	12	12	20	20	20	20

## **Oneway Anova Summary of Fit**

Rsquare	0.451921
Adj Rsquare	0.295327
Root Mean Square Error	8.054132
Mean of Response	14.5
Observations (or Sum Wgts)	10

## **Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	374.41667	187.208	2.8859	0.1219
Error	7	454.08333	64.869		
C. Total	9	828.50000			

## **Means for Oneway Anova**

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	7.2500	4.0271	-2.27	16.772
2	3	21.3333	4.6501	10.34	32.329
3	3	17.3333	4.6501	6.34	28.329

Std Error uses a pooled estimate of error variance

## **Means Comparisons**

### **Comparisons for all pairs using Tukey-Kramer HSD**

	q*	Alpha			
	2.94498	0.05			
Abs(Dif)-LSD			2	3	1
2			-19.3667	-15.3667	-4.03253

Abs(Dif)-LSD	2	3	1
3	-15.3667	-19.3667	-8.03253
1	-4.03253	-8.03253	-16.772

Positive values show pairs of means that are significantly different.

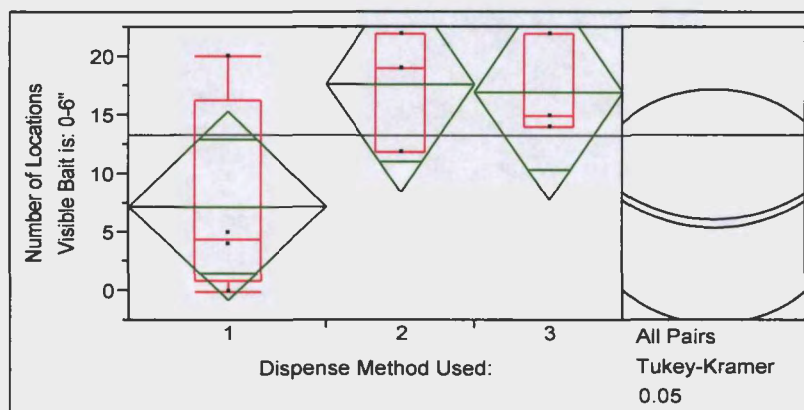
Level		Mean
2	A	21.333333
3	A	17.333333
1	A	7.250000

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
2	1	14.08333	6.151445	-4.0325	32.19920	0.1231	
3	1	10.08333	6.151445	-8.0325	28.19920	0.2923	
2	3	4.00000	6.576172	-15.3667	23.36668	0.8203	

Data Table=Day=2,Linked Subset=This subset is linked to Untitled Rozol bait,Day=2

### Oneway Analysis of Number of Locations Visible Bait is: 0-6" By Dispense Method Used: Day=2



#### Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	1	4.5	16.25	20	20
2	12	12	12	19	22	22	22
3	14	14	14	15	22	22	22

#### Oneway Anova Summary of Fit

Rsquare	0.432226
Adj Rsquare	0.270005
Root Mean Square Error	6.776184
Mean of Response	13.3
Observations (or Sum Wgts)	10

#### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	244.68333	122.342	2.6644	0.1379



Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Error	7	321.41667	45.917		
C. Total	9	566.10000			

### Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	7.2500	3.3881	-0.762	15.262
2	3	17.6667	3.9122	8.416	26.918
3	3	17.0000	3.9122	7.749	26.251

Std Error uses a pooled estimate of error variance

### Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha		
	2.94498	0.05		
Abs(Dif)-LSD		2	3	1
2		-16.2938	-15.6271	-4.82476
3		-15.6271	-16.2938	-5.49142
1		-4.82476	-5.49142	-14.1108

Positive values show pairs of means that are significantly different.

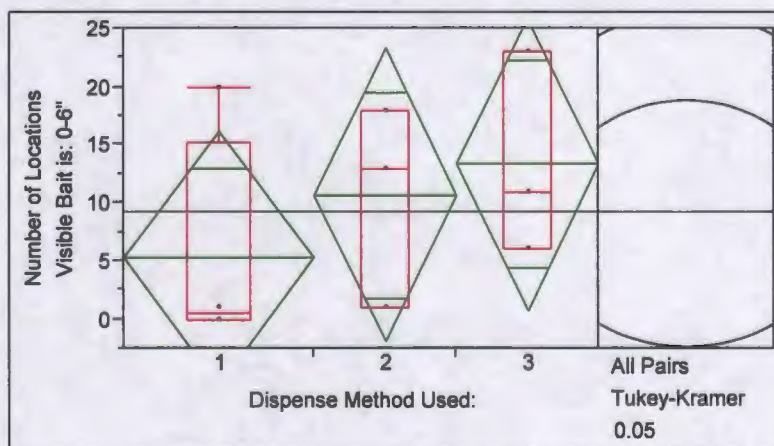
Level	Mean
2	A 17.66667
3	A 17.00000
1	A 7.25000

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
2	1	10.41667	5.175396	-4.8248	25.65809	0.1793	
3	1	9.75000	5.175396	-5.4914	24.99142	0.2129	
2	3	0.66667	5.532731	-15.6271	16.96044	0.9920	

Data Table=Day=3, Linked Subset=This subset is linked to Untitled Rozol bait, Day=3

### Oneway Analysis of Number of Locations Visible Bait is: 0-6" By Dispense Method Used: Day=3



### Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	0	0.5	15.25	20	20
2	1	1	1	13	18	18	18
3	6	6	6	11	23	23	23

### Oneway Anova Summary of Fit

Rsquare	0.167598
Adj Rsquare	-0.07023
Root Mean Square Error	9.227934
Mean of Response	9.3
Observations (or Sum Wgts)	10

### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	120.01667	60.0083	0.7047	0.5262
Error	7	596.08333	85.1548		
C. Total	9	716.10000			

### Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	5.2500	4.6140	-5.660	16.160
2	3	10.6667	5.3278	-1.931	23.265
3	3	13.3333	5.3278	0.735	25.931

Std Error uses a pooled estimate of error variance

### Means Comparisons

#### Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha			
	2.94498	0.05			
Abs(Dif)-LSD			3	2	1
3			-22.1892	-19.5225	-12.6727
2			-19.5225	-22.1892	-15.3394
1			-12.6727	-15.3394	-19.2164

Positive values show pairs of means that are significantly different.

Level	Mean
3	13.333333
2	10.666667
1	5.250000

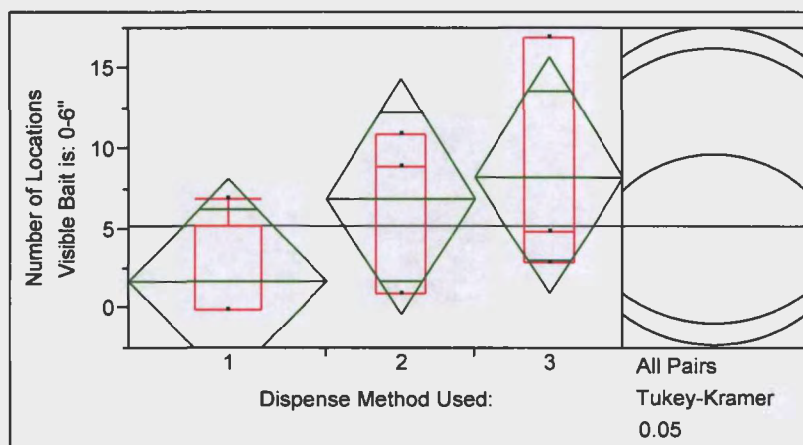
Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
3	1	8.083333	7.047951	-12.6727	28.83939	0.5182	
2	1	5.416667	7.047951	-15.3394	26.17272	0.7328	
3	2	2.666667	7.534576	-19.5225	24.85583	0.9339	

Data Table=Day=4,Linked Subset=This subset is linked to Untitled Rozol bait,Day=4



# Oneway Analysis of Number of Locations Visible Bait is: 0-6" By Dispense Method Used: Day=4



## Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	0	0	5.25	7	7
2	1	1	1	9	11	11	11
3	3	3	3	5	17	17	17

## Oneway Anova Summary of Fit

Rsquare	0.294741
Adj Rsquare	0.093238
Root Mean Square Error	5.443432
Mean of Response	5.3
Observations (or Sum Wgts)	10

## Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	86.68333	43.3417	1.4627	0.2946
Error	7	207.41667	29.6310		
C. Total	9	294.10000			

## Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	1.75000	2.7217	-4.686	8.186
2	3	7.00000	3.1428	-0.431	14.431
3	3	8.33333	3.1428	0.902	15.765

Std Error uses a pooled estimate of error variance

## Means Comparisons

### Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha			
	2.94498	0.05			
Abs(Dif)-LSD			3	2	1
3			-13.0891	-11.7557	-5.66038
2			-11.7557	-13.0891	-6.99371
1			-5.66038	-6.99371	-11.3355

Positive values show pairs of means that are significantly different.

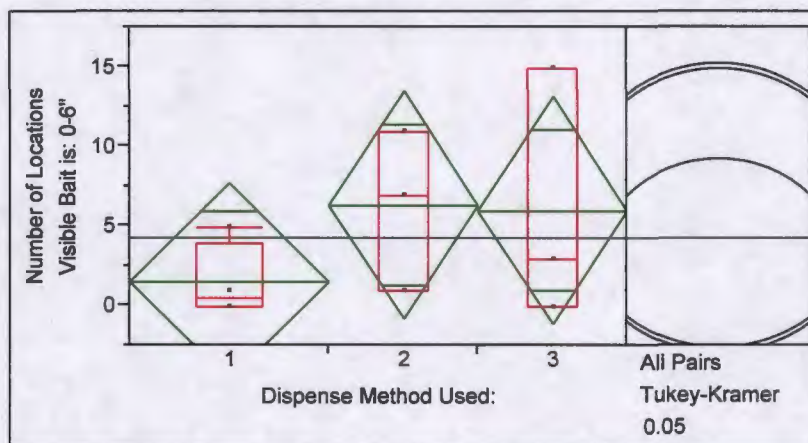
Level		Mean
3	A	8.333333
2	A	7.000000
1	A	1.750000

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
3	1	6.583333	4.157490	-5.6604	18.82705	0.3134	
2	1	5.250000	4.157490	-6.9937	17.49371	0.4575	
3	2	1.333333	4.444544	-11.7557	14.42241	0.9519	

Data Table=Day=5,Linked Subset=This subset is linked to Untitled Rozol bait,Day=5

### Oneway Analysis of Number of Locations Visible Bait is: 0-6" By Dispense Method Used: Day=5



#### Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	0	0.5	4	5	5
2	1	1	1	7	11	11	11
3	0	0	0	3	15	15	15

#### Oneway Anova Summary of Fit

Rsquare	0.213057
Adj Rsquare	-0.01178
Root Mean Square Error	5.259911
Mean of Response	4.3
Observations (or Sum Wgts)	10

#### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	52.43333	26.2167	0.9476	0.4323
Error	7	193.66667	27.6667		
C. Total	9	246.10000			



## Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	1.50000	2.6300	-4.719	7.719
2	3	6.33333	3.0368	-0.848	13.514
3	3	6.00000	3.0368	-1.181	13.181

Std Error uses a pooled estimate of error variance

## Means Comparisons

### Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha		
	2.94498	0.05		
Abs(Dif)-LSD		2	3	1
2		-12.6478	-12.3145	-6.99759
3		-12.3145	-12.6478	-7.33093
1		-6.99759	-7.33093	-10.9533

Positive values show pairs of means that are significantly different.

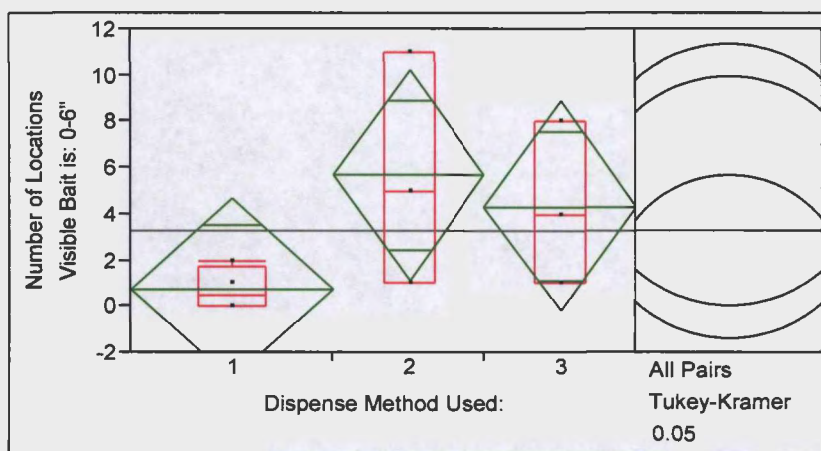
Level	Mean
2 A	6.333333
3 A	6.000000
1 A	1.500000

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
2	1	4.833333	4.017324	-6.9976	16.66426	0.4883	
3	1	4.500000	4.017324	-7.3309	16.33093	0.5328	
2	3	0.333333	4.294700	-12.3145	12.98113	0.9967	

Data Table=Day=6,Linked Subset=This subset is linked to Untitled Rozol bait,Day=6

## Oneway Analysis of Number of Locations Visible Bait is: 0-6" By Dispense Method Used: Day=6



## Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	0	0.5	1.75	2	2
2	1	1	1	5	11	11	11

Level	Minimum	10%	25%	Median	75%	90%	Maximum
3	1	1	1	4	8	8	8

### Oneway Anova Summary of Fit

Rsquare	0.370803
Adj Rsquare	0.191033
Root Mean Square Error	3.339875
Mean of Response	3.3
Observations (or Sum Wgts)	10

### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	46.01667	23.0083	2.0626	0.1976
Error	7	78.08333	11.1548		
C. Total	9	124.10000			

### Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	0.75000	1.6699	-3.199	4.699
2	3	5.66667	1.9283	1.107	10.226
3	3	4.33333	1.9283	-0.226	8.893

Std Error uses a pooled estimate of error variance

### Means Comparisons

#### Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha		
	2.94498	0.05		
Abs(Dif)-LSD		2	3	1
2		-8.03094	-6.69761	-2.59559
3		-6.69761	-8.03094	-3.92893
1		-2.59559	-3.92893	-6.955

Positive values show pairs of means that are significantly different.

Level	Mean
2	A 5.666667
3	A 4.333333
1	A 0.750000

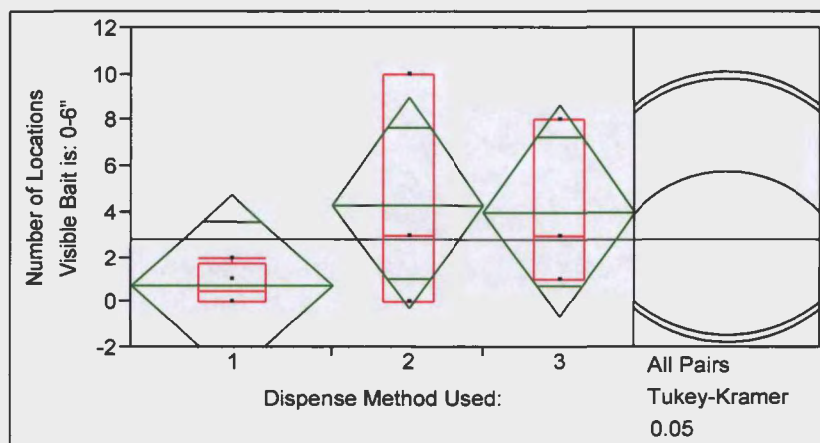
Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
2	1	4.916667	2.550871	-2.59559	12.42893	0.2010	
3	1	3.583333	2.550871	-3.92893	11.09559	0.3891	
2	3	1.333333	2.726996	-6.69761	9.36428	0.8787	

Data Table=Day=7,Linked Subset=This subset is linked to Untitled Rozol bait,Day=7



# **Oneway Analysis of Number of Locations Visible Bait is: 0-6" By Dispense Method Used: Day=7**



## **Quantiles**

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	0	0.5	1.75	2	2
2	0	0	0	3	10	10	10
3	1	1	1	3	8	8	8

## **Oneway Anova Summary of Fit**

Rsquare	0.257147
Adj Rsquare	0.044904
Root Mean Square Error	3.410418
Mean of Response	2.8
Observations (or Sum Wgts)	10

## **Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	28.18333	14.0917	1.2116	0.3533
Error	7	81.41667	11.6310		
C. Total	9	109.60000			

## **Means for Oneway Anova**

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	0.75000	1.7052	-3.282	4.7822
2	3	4.33333	1.9690	-0.323	8.9893
3	3	4.00000	1.9690	-0.656	8.6560

Std Error uses a pooled estimate of error variance

## **Means Comparisons**

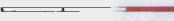
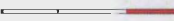
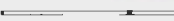
### **Comparisons for all pairs using Tukey-Kramer HSD**

q*	2.94498	Alpha	0.05
Abs(Dif)-LSD	2	3	1
2	-8.20057	-7.86724	-4.0876
3	-7.86724	-8.20057	-4.42093
1	-4.0876	-4.42093	-7.1019

Positive values show pairs of means that are significantly different.

Level		Mean
2	A	4.333333
3	A	4.000000
1	A	0.750000

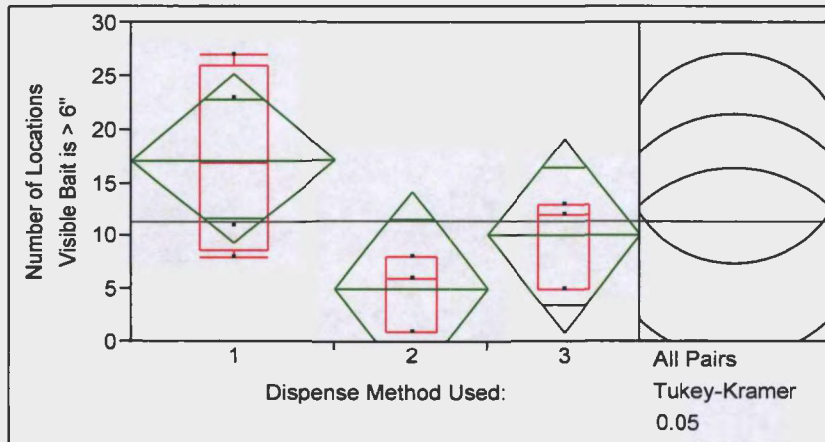
Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
2	1	3.583333	2.604750	-4.08760	11.25426	0.4025	
3	1	3.250000	2.604750	-4.42093	10.92093	0.4652	
2	3	0.333333	2.784595	-7.86724	8.53390	0.9921	



Data Table=Day=1,Linked Subset=This subset is linked to Untitled Rozol bait,Day=1

# **Oneway Analysis of Number of Locations Visible Bait is > 6" By Dispense Method Used: Day=1**



## **Quantiles**

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	8	8	8.75	17	26	27	27
2	1	1	1	6	8	8	8
3	5	5	5	12	13	13	13

## **Oneway Anova Summary of Fit**

Rsquare	0.45613
Adj Rsquare	0.300738
Root Mean Square Error	6.726812
Mean of Response	11.4
Observations (or Sum Wgts)	10

## **Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	265.65000	132.825	2.9354	0.1186
Error	7	316.75000	45.250		
C. Total	9	582.40000			

## **Means for Oneway Anova**

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	17.2500	3.3634	9.297	25.203
2	3	5.0000	3.8837	-4.184	14.184
3	3	10.0000	3.8837	0.816	19.184

Std Error uses a pooled estimate of error variance

## **Means Comparisons**

### **Comparisons for all pairs using Tukey-Kramer HSD**

	q*	Alpha	
	2.94498	0.05	
Abs(Dif)-LSD			
1		1	3
		-14.008	-7.88037
			2
			-2.88037

Abs(Dif)-LSD	1	3	2
3	-7.88037	-16.1751	-11.1751
2	-2.88037	-11.1751	-16.1751

Positive values show pairs of means that are significantly different.

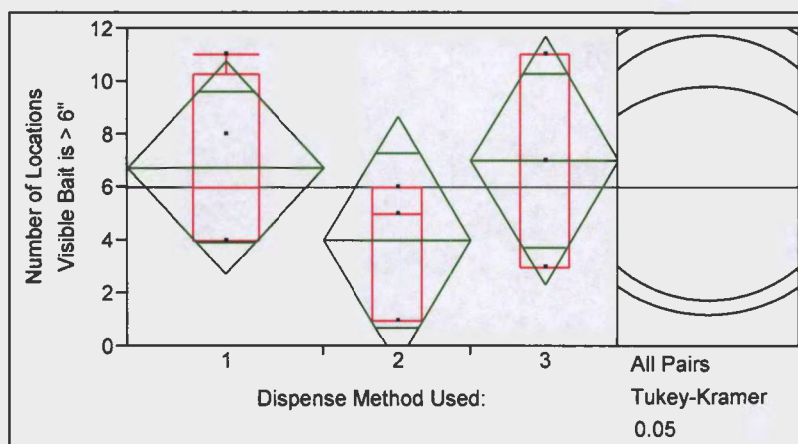
Level		Mean
1	A	17.250000
3	A	10.000000
2	A	5.000000

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
1	2	12.25000	5.137688	-2.8804	27.38037	0.1080	
1	3	7.25000	5.137688	-7.8804	22.38037	0.3861	
3	2	5.00000	5.492419	-11.1751	21.17505	0.6514	

Data Table=Day=2,Linked Subset=This subset is linked to Untitled Rozol bait,Day=2

### Oneway Analysis of Number of Locations Visible Bait is > 6" By Dispense Method Used: Day=2



#### Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	4	4	4	6	10.25	11	11
2	1	1	1	5	6	6	6
3	3	3	3	7	11	11	11

#### Oneway Anova Summary of Fit

Rsquare	0.17602
Adj Rsquare	-0.0594
Root Mean Square Error	3.396427
Mean of Response	6
Observations (or Sum Wgts)	10

#### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	17.250000	8.6250	0.7477	0.5078



Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Error	7	80.750000	11.5357		
C. Total	9	98.000000			

### Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	6.75000	1.6982	2.734	10.766
2	3	4.00000	1.9609	-0.637	8.637
3	3	7.00000	1.9609	2.363	11.637

Std Error uses a pooled estimate of error variance

### Means Comparisons

#### Comparisons for all pairs using Tukey-Kramer HSD

q\* 2.94498  
Alpha 0.05

Abs(Dif)-LSD	3	1	2
3	-8.16693	-7.38946	-5.16693
1	-7.38946	-7.07277	-4.88946
2	-5.16693	-4.88946	-8.16693

Positive values show pairs of means that are significantly different.

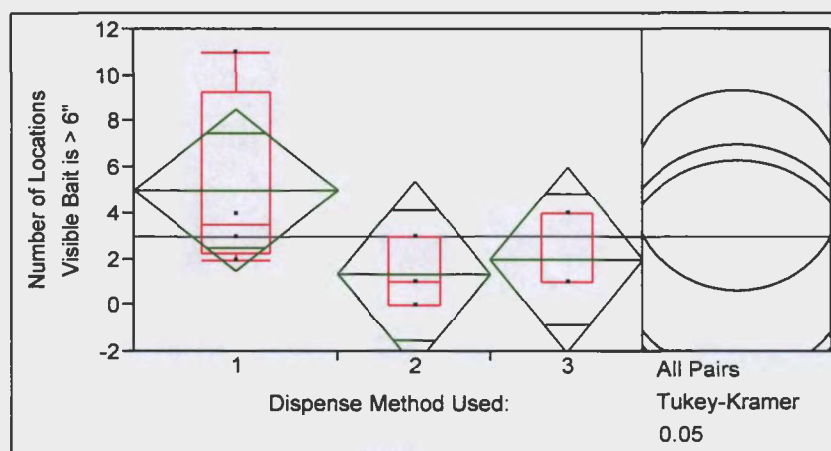
Level		Mean
3	A	7.0000000
1	A	6.7500000
2	A	4.0000000

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
3	2	3.000000	2.773171	-5.16693	11.16693	0.5539	
1	2	2.750000	2.594064	-4.88946	10.38946	0.5660	
3	1	0.250000	2.594064	-7.38946	7.88946	0.9949	

Data Table=Day=3,Linked Subset=This subset is linked to Untitled Rozol bait,Day=3

### Oneway Analysis of Number of Locations Visible Bait is > 6" By Dispense Method Used: Day=3



## Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	2	2	2.25	3.5	9.25	11	11
2	0	0	0	1	3	3	3
3	1	1	1	1	4	4	4

## Oneway Anova Summary of Fit

Rsquare	0.310606
Adj Rsquare	0.113636
Root Mean Square Error	2.94392
Mean of Response	3
Observations (or Sum Wgts)	10

## Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	27.333333	13.6667	1.5769	0.2720
Error	7	60.666667	8.6667		
C. Total	9	88.000000			

## Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	5.00000	1.4720	1.519	8.4806
2	3	1.33333	1.6997	-2.686	5.3524
3	3	2.00000	1.6997	-2.019	6.0191

Std Error uses a pooled estimate of error variance

## Means Comparisons

### Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha			
	2.94498	0.05			
Abs(Dif)-LSD			1	3	2
1			-6.13046	-3.62165	-2.95499
3			-3.62165	-7.07885	-6.41218
2			-2.95499	-6.41218	-7.07885

Positive values show pairs of means that are significantly different.

Level	Mean
1 A	5.0000000
3 A	2.0000000
2 A	1.3333333

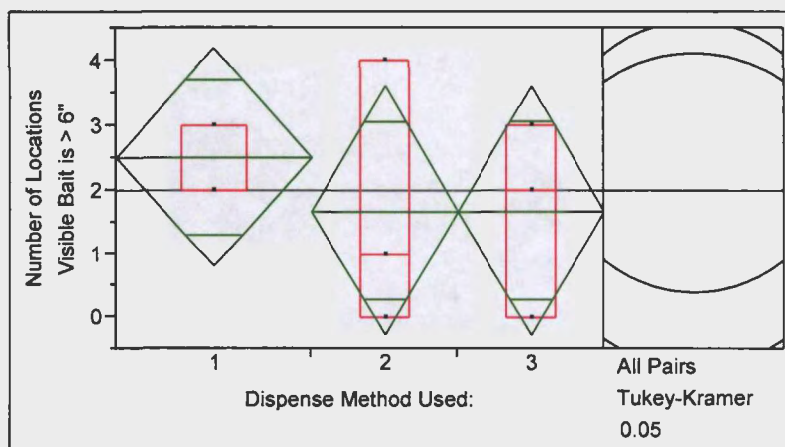
Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value Difference
1	2	3.666667	2.248456	-2.95499	10.28832	0.2954
1	3	3.000000	2.248456	-3.62165	9.62165	0.4222
3	2	0.666667	2.403701	-6.41218	7.74551	0.9587

Data Table=Day=4,Linked Subset=This subset is linked to Untitled Rozol bait,Day=4



# **Oneway Analysis of Number of Locations Visible Bait is > 6" By Dispense Method Used: Day=4**



## **Quantiles**

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	2	2	2	2.5	3	3	3
2	0	0	0	1	4	4	4
3	0	0	0	2	3	3	3

## **Oneway Anova Summary of Fit**

Rsquare	0.104167
Adj Rsquare	-0.15179
Root Mean Square Error	1.43095
Mean of Response	2
Observations (or Sum Wgts)	10

## **Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	1.666667	0.83333	0.4070	0.6804
Error	7	14.333333	2.04762		
C. Total	9	16.000000			

## **Means for Oneway Anova**

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	2.50000	0.71548	0.8082	4.1918
2	3	1.66667	0.82616	-0.2869	3.6202
3	3	1.66667	0.82616	-0.2869	3.6202

Std Error uses a pooled estimate of error variance

## **Means Comparisons**

### **Comparisons for all pairs using Tukey-Kramer HSD**

	q*	Alpha			
	2.94498	0.05			
Abs(Dif)-LSD			1	2	3
1			-2.97983	-2.38525	-2.38525
2			-2.38525	-3.44081	-3.44081
3			-2.38525	-3.44081	-3.44081

Positive values show pairs of means that are significantly different.

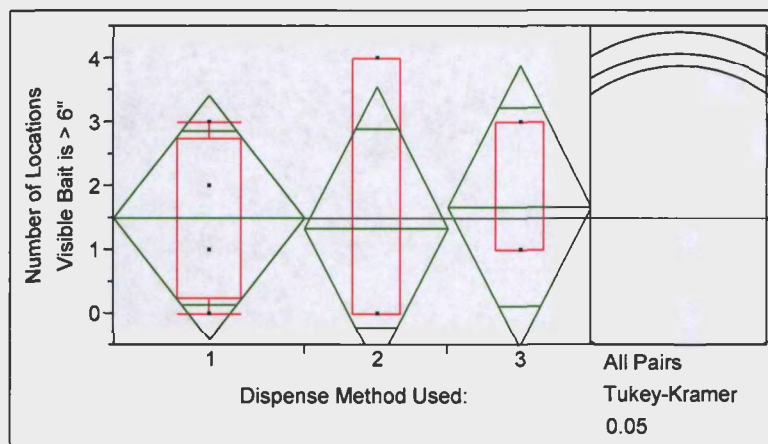
Level		Mean
1	A	2.500000
2	A	1.666667
3	A	1.666667

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
1	2	0.833333	1.092906	-2.38525	4.051918	0.7362	
1	3	0.833333	1.092906	-2.38525	4.051918	0.7362	
3	2	0.000000	1.168366	-3.44081	3.440812	1.0000	

Data Table=Day=5, Linked Subset=This subset is linked to Untitled Rozol bait, Day=5

### Oneway Analysis of Number of Locations Visible Bait is > 6" By Dispense Method Used: Day=5



### Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	0.25	1.5	2.75	3	3
2	0	0	0	0	4	4	4
3	1	1	1	1	3	3	3

### Oneway Anova Summary of Fit

Rsquare	0.009009
Adj Rsquare	-0.27413
Root Mean Square Error	1.618347
Mean of Response	1.5
Observations (or Sum Wgts)	10

### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	0.166667	0.08333	0.0318	0.9688
Error	7	18.333333	2.61905		
C. Total	9	18.500000			



# Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	1.50000	0.80917	-0.4134	3.4134
2	3	1.33333	0.93435	-0.8761	3.5427
3	3	1.66667	0.93435	-0.5427	3.8761

Std Error uses a pooled estimate of error variance

## Means Comparisons

### Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha	
	2.94498	0.05	
Abs(Dif)-LSD	3	1	2
3	-3.89142	-3.47342	-3.55809
1	-3.47342	-3.37007	-3.47342
2	-3.55809	-3.47342	-3.89142

Positive values show pairs of means that are significantly different.

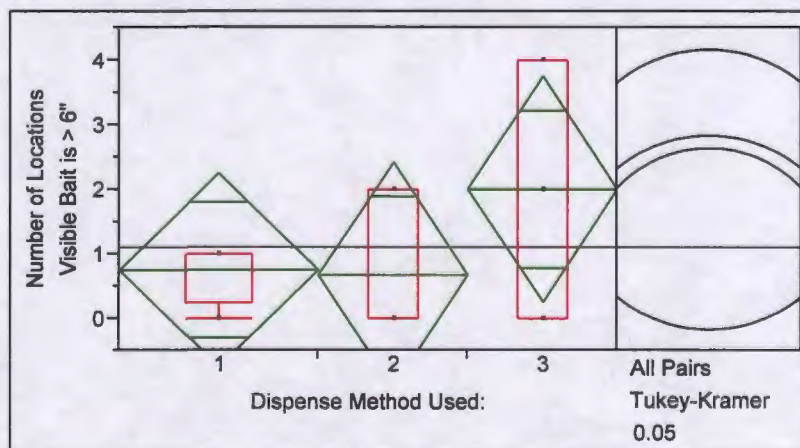
Level	Mean
3 A	1.666667
1 A	1.500000
2 A	1.333333

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
3	2	0.333333	1.321375	-3.55809	4.224753	0.9657	
3	1	0.166667	1.236033	-3.47342	3.806756	0.9900	
1	2	0.166667	1.236033	-3.47342	3.806756	0.9900	

Data Table=Day=6, Linked Subset=This subset is linked to Untitled Rozol bait, Day=6

## Oneway Analysis of Number of Locations Visible Bait is > 6" By Dispense Method Used: Day=6



## Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	0.25	1	1	1	1
2	0	0	0	0	2	2	2

Level	Minimum	10%	25%	Median	75%	90%	Maximum
3	0	0	0	2	4	4	4

## Oneway Anova Summary of Fit

Rsquare	0.233781
Adj Rsquare	0.014861
Root Mean Square Error	1.277087
Mean of Response	1.1
Observations (or Sum Wgts)	10

## Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	3.483333	1.74167	1.0679	0.3938
Error	7	11.416667	1.63095		
C. Total	9	14.900000			

## Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	0.75000	0.63854	-0.760	2.2599
2	3	0.66667	0.73733	-1.077	2.4102
3	3	2.00000	0.73733	0.256	3.7435

Std Error uses a pooled estimate of error variance

## Means Comparisons

### Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha			
	2.94498	0.05			
Abs(Dif)-LSD			3	1	2
3			-3.07084	-1.62251	-1.73751
1			-1.62251	-2.65942	-2.78917
2			-1.73751	-2.78917	-3.07084

Positive values show pairs of means that are significantly different.

Level	Mean
3	A 2.0000000
1	A 0.7500000
2	A 0.6666667

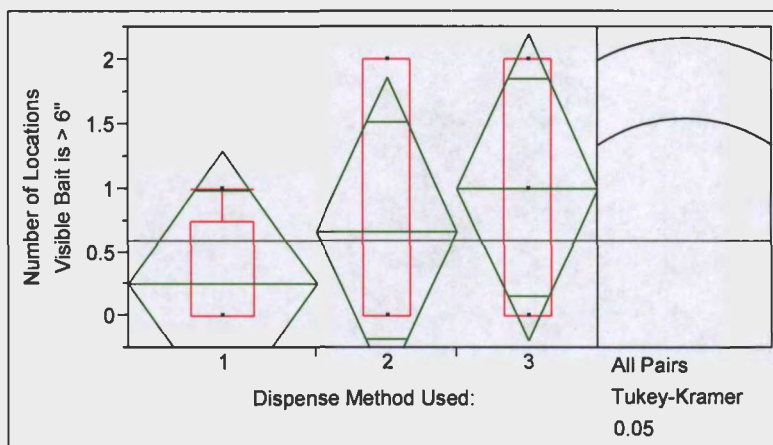
Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
3	2	1.333333	1.042738	-1.73751	4.404172	0.4495	
3	1	1.250000	0.975392	-1.62251	4.122507	0.4481	
1	2	0.083333	0.975392	-2.78917	2.955840	0.9960	

Data Table=Day=7,Linked Subset=This subset is linked to Untitled Rozol bait,Day=7



# **Oneway Analysis of Number of Locations Visible Bait is > 6" By Dispense Method Used: Day=7**



## **Quantiles**

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	0	0	0.75	1	1
2	0	0	0	0	2	2	2
3	0	0	0	1	2	2	2

## **Oneway Anova Summary of Fit**

Rsquare	0.153646
Adj Rsquare	-0.08817
Root Mean Square Error	0.879664
Mean of Response	0.6
Observations (or Sum Wgts)	10

## **Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	0.9833333	0.491667	0.6354	0.5577
Error	7	5.4166667	0.773810		
C. Total	9	6.4000000			

## **Means for Oneway Anova**

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	0.25000	0.43983	-0.7900	1.2900
2	3	0.66667	0.50787	-0.5343	1.8676
3	3	1.00000	0.50787	-0.2009	2.2009

Std Error uses a pooled estimate of error variance

## **Means Comparisons**

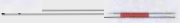
### **Comparisons for all pairs using Tukey-Kramer HSD**

	q*	Alpha		
	2.94498	0.05		
Abs(Dif)-LSD		3	2	1
3		-2.11521	-1.78188	-1.2286
2		-1.78188	-2.11521	-1.56193
1		-1.2286	-1.56193	-1.83183

Positive values show pairs of means that are significantly different.

Level		Mean
3	A	1.0000000
2	A	0.6666667
1	A	0.2500000

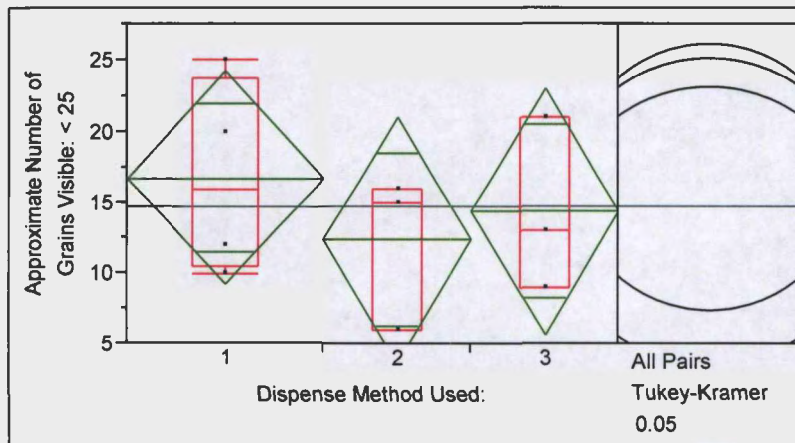
Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
3	1	0.7500000	0.6718548	-1.22860	2.728597	0.5349	
2	1	0.4166667	0.6718548	-1.56193	2.395264	0.8141	
3	2	0.3333333	0.7182430	-1.78188	2.448543	0.8898	



Data Table=Day=1,Linked Subset=This subset is linked to Untitled Rozol bait,Day=1

# **Oneway Analysis of Approximate Number of Grains Visible: < 25 By Dispense Method Used: Day=1**



## **Quantiles**

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	10	10	10.5	16	23.75	25	25
2	6	6	6	15	16	16	16
3	9	9	9	13	21	21	21

## **Oneway Anova Summary of Fit**

Rsquare	0.107614
Adj Rsquare	-0.14735
Root Mean Square Error	6.348041
Mean of Response	14.7
Observations (or Sum Wgts)	10

## **Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	34.01667	17.0083	0.4221	0.6713
Error	7	282.08333	40.2976		
C. Total	9	316.10000			

## **Means for Oneway Anova**

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	16.7500	3.1740	9.2446	24.255
2	3	12.3333	3.6650	3.6669	21.000
3	3	14.3333	3.6650	5.6669	23.000

Std Error uses a pooled estimate of error variance

## **Means Comparisons**

### **Comparisons for all pairs using Tukey-Kramer HSD**

Comparison of all pairs using Tukey Kramer HSD			
	q*	Alpha	
	2.94498	0.05	
Abs(Dif)-LSD	1	3	2
1	-13.2192	-11.8618	-9.86175

Abs(Dif)-LSD	1	3	2
3	-11.8618	-15.2643	-13.2643
2	-9.86175	-13.2643	-15.2643

Positive values show pairs of means that are significantly different.

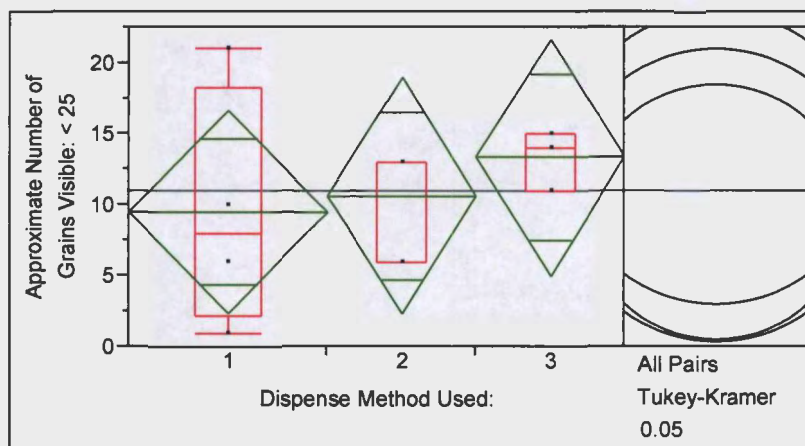
Level		Mean
1	A	16.750000
3	A	14.333333
2	A	12.333333

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
1	2	4.416667	4.848396	-9.8618	18.69508	0.6510	
1	3	2.416667	4.848396	-11.8618	16.69508	0.8743	
3	2	2.000000	5.183153	-13.2643	17.26427	0.9221	

Data Table=Day=2,Linked Subset=This subset is linked to Untitled Rozol bait,Day=2

### Oneway Analysis of Approximate Number of Grains Visible: < 25 By Dispense Method Used: Day=2



#### Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	1	1	2.25	8	18.25	21	21
2	6	6	6	13	13	13	13
3	11	11	11	14	15	15	15

#### Oneway Anova Summary of Fit

Rsquare	0.090376
Adj Rsquare	-0.16952
Root Mean Square Error	6.074929
Mean of Response	11
Observations (or Sum Wgts)	10

#### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	25.66667	12.8333	0.3477	0.7178



Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Error	7	258.33333	36.9048		
C. Total	9	284.00000			

### Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	9.5000	3.0375	2.3175	16.682
2	3	10.6667	3.5074	2.3731	18.960
3	3	13.3333	3.5074	5.0397	21.627

Std Error uses a pooled estimate of error variance

### Means Comparisons

#### Comparisons for all pairs using Tukey-Kramer HSD

q\* 2.94498  
Alpha 0.05

Abs(Dif)-LSD	3	2	1
3	-14.6076	-11.9409	-9.83078
2	-11.9409	-14.6076	-12.4975
1	-9.83078	-12.4975	-12.6505

Positive values show pairs of means that are significantly different.

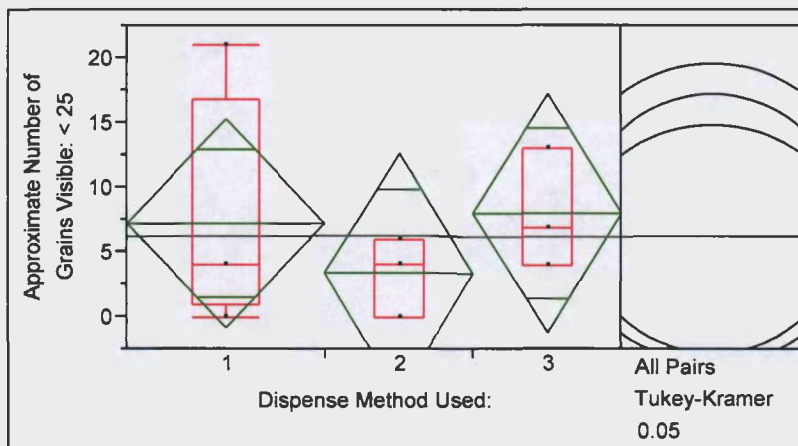
Level		Mean
3	A	13.333333
2	A	10.666667
1	A	9.500000

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
3	1	3.833333	4.639804	-9.8308	17.49745	0.6999	
3	2	2.666667	4.960159	-11.9409	17.27422	0.8558	
2	1	1.166667	4.639804	-12.4975	14.83078	0.9659	

Data Table=Day=3,Linked Subset=This subset is linked to Untitled Rozol bait,Day=3

### Oneway Analysis of Approximate Number of Grains Visible: < 25 By Dispense Method Used: Day=3



### Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	1	4	16.75	21	21
2	0	0	0	4	6	6	6
3	4	4	4	7	13	13	13

### Oneway Anova Summary of Fit

Rsquare	0.106831
Adj Rsquare	-0.14836
Root Mean Square Error	6.797233
Mean of Response	6.3
Observations (or Sum Wgts)	10

### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	38.68333	19.3417	0.4186	0.6734
Error	7	323.41667	46.2024		
C. Total	9	362.10000			

### Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	7.25000	3.3986	-0.786	15.286
2	3	3.33333	3.9244	-5.946	12.613
3	3	8.00000	3.9244	-1.280	17.280

Std Error uses a pooled estimate of error variance

### Means Comparisons

#### Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha		
	2.94498	0.05		
Abs(Dif)-LSD		3	1	2
3		-16.3444	-14.5388	-11.6777
1		-14.5388	-14.1547	-11.3721
2		-11.6777	-11.3721	-16.3444

Positive values show pairs of means that are significantly different.

Level	Mean
3	8.000000
1	7.250000
2	3.333333

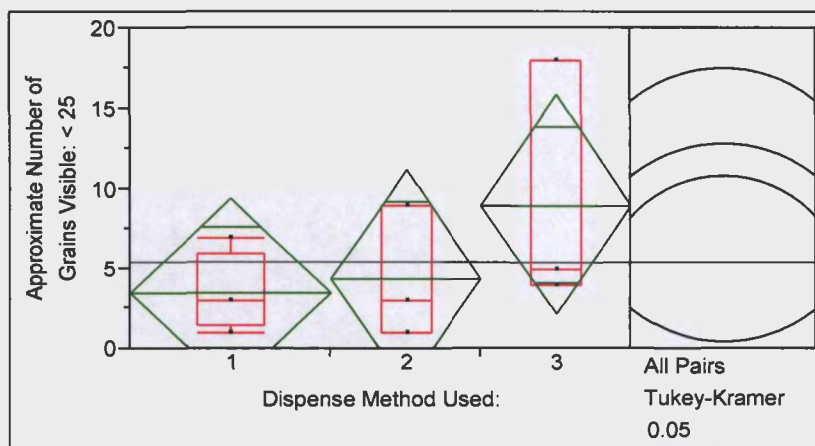
Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
3	2	4.666667	5.549918	-11.6777	21.01105	0.6914	
1	2	3.916667	5.191473	-11.3721	19.20544	0.7407	
3	1	0.750000	5.191473	-14.5388	16.03877	0.9886	

Data Table=Day=4,Linked Subset=This subset is linked to Untitled Rozol bait,Day=4



# **Oneway Analysis of Approximate Number of Grains Visible: < 25 By Dispense Method Used: Day=4**



## **Quantiles**

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	1	1	1.5	3	6	7	7
2	1	1	1	3	9	9	9
3	4	4	4	5	18	18	18

## **Oneway Anova Summary of Fit**

Rsquare	0.244119
Adj Rsquare	0.028153
Root Mean Square Error	5.009515
Mean of Response	5.4
Observations (or Sum Wgts)	10

## **Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	56.73333	28.3667	1.1304	0.3755
Error	7	175.66667	25.0952		
C. Total	9	232.40000			

## **Means for Oneway Anova**

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	3.50000	2.5048	-2.423	9.423
2	3	4.33333	2.8922	-2.506	11.172
3	3	9.00000	2.8922	2.161	15.839

Std Error uses a pooled estimate of error variance

## **Means Comparisons**

### **Comparisons for all pairs using Tukey-Kramer HSD**

	q*	Alpha	
	2.94498	0.05	
Abs(Dif)-LSD			
3	-12.0457	-7.37903	-5.76772
2	-7.37903	-12.0457	-10.4344
1	-5.76772	-10.4344	-10.4319

Positive values show pairs of means that are significantly different.

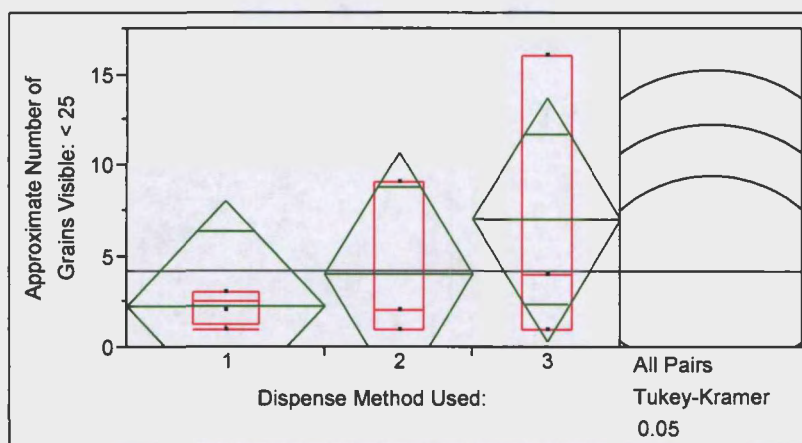
Level		Mean
3	A	9.0000000
2	A	4.3333333
1	A	3.5000000

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
3	1	5.500000	3.826080	-5.7677	16.76772	0.3743	
3	2	4.666667	4.090252	-7.3790	16.71237	0.5215	
2	1	0.833333	3.826080	-10.4344	12.10105	0.9743	

Data Table=Day=5,Linked Subset=This subset is linked to Untitled Rozol bait,Day=5

### Oneway Analysis of Approximate Number of Grains Visible: < 25 By Dispense Method Used: Day=5



### Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	1	1	1.25	2.5	3	3	3
2	1	1	1	2	9	9	9
3	1	1	1	4	16	16	16

### Oneway Anova Summary of Fit

Rsquare	0.188959
Adj Rsquare	-0.04277
Root Mean Square Error	4.88072
Mean of Response	4.2
Observations (or Sum Wgts)	10

### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	38.85000	19.4250	0.8154	0.4805
Error	7	166.75000	23.8214		
C. Total	9	205.60000			



## Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	2.25000	2.4404	-3.521	8.021
2	3	4.00000	2.8179	-2.663	10.663
3	3	7.00000	2.8179	0.337	13.663

Std Error uses a pooled estimate of error variance

## Means Comparisons

### Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha		
	2.94498	0.05		
Abs(Dif)-LSD				
3		-11.736	-8.736	-6.22803
2		-8.736	-11.736	-9.22803
1		-6.22803	-9.22803	-10.1637

Positive values show pairs of means that are significantly different.

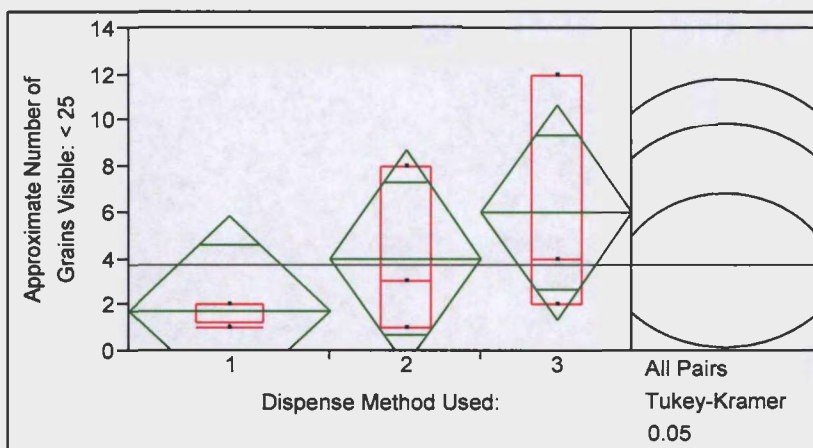
Level	Mean
3	7.0000000
2	4.0000000
1	2.2500000

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
3	1	4.750000	3.727712	-6.22803	15.72803	0.4517	
3	2	3.000000	3.985091	-8.73600	14.73600	0.7417	
2	1	1.750000	3.727712	-9.22803	12.72803	0.8875	

Data Table=Day=6,Linked Subset=This subset is linked to Untitled Rozol bait,Day=6

## Oneway Analysis of Approximate Number of Grains Visible: < 25 By Dispense Method Used: Day=6



## Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	1	1	1.25	2	2	2	2
2	1	1	1	3	8	8	8

Level	Minimum	10%	25%	Median	75%	90%	Maximum
3	2	2	2	4	12	12	12

## Oneway Anova Summary of Fit

Rsquare	0.274759
Adj Rsquare	0.067547
Root Mean Square Error	3.43823
Mean of Response	3.7
Observations (or Sum Wgts)	10

## Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	31.35000	15.6750	1.3260	0.3249
Error	7	82.75000	11.8214		
C. Total	9	114.10000			

## Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	1.75000	1.7191	-2.315	5.815
2	3	4.00000	1.9851	-0.694	8.694
3	3	6.00000	1.9851	1.306	10.694

Std Error uses a pooled estimate of error variance

## Means Comparisons

### Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha		
	2.94498	0.05		
Abs(Dif)-LSD		3	2	1
3		-8.26745	-6.26745	-3.48349
2		-6.26745	-8.26745	-5.48349
1		-3.48349	-5.48349	-7.15982

Positive values show pairs of means that are significantly different.

Level	Mean
3 A	6.0000000
2 A	4.0000000
1 A	1.7500000

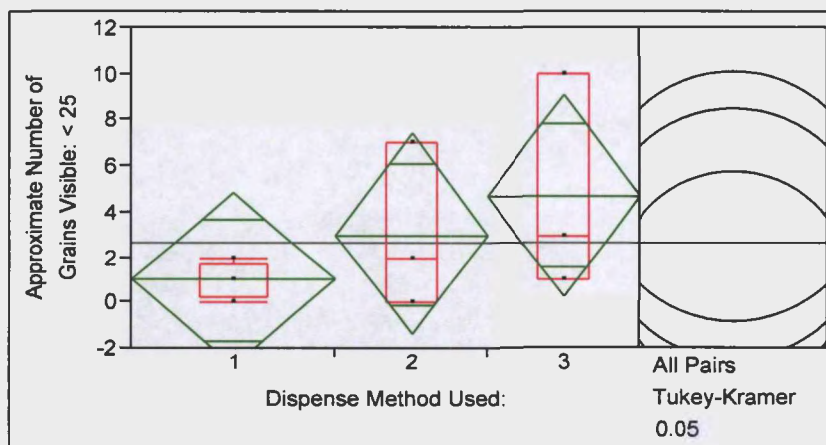
Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
3	1	4.250000	2.625992	-3.48349	11.98349	0.3000	
2	1	2.250000	2.625992	-5.48349	9.98349	0.6822	
3	2	2.000000	2.807303	-6.26745	10.26745	0.7642	

Data Table=Day=7, Linked Subset=This subset is linked to Untitled Rozol bait, Day=7



# Oneway Analysis of Approximate Number of Grains Visible: < 25 By Dispense Method Used: Day=7



## Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	0.25	1	1.75	2	2
2	0	0	0	2	7	7	7
3	1	1	1	3	10	10	10

## Oneway Anova Summary of Fit

Rsquare	0.243843
Adj Rsquare	0.027798
Root Mean Square Error	3.221949
Mean of Response	2.7
Observations (or Sum Wgts)	10

## Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	23.433333	11.7167	1.1287	0.3760
Error	7	72.666667	10.3810		
C. Total	9	96.100000			

## Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	1.00000	1.6110	-2.809	4.8093
2	3	3.00000	1.8602	-1.399	7.3987
3	3	4.66667	1.8602	0.268	9.0653

Std Error uses a pooled estimate of error variance

## Means Comparisons

### Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha		
	2.94498	0.05		
Abs(Dif)-LSD		3	2	1
3		-7.74738	-6.08072	-3.58035
2		-6.08072	-7.74738	-5.24701
1		-3.58035	-5.24701	-6.70943

Positive values show pairs of means that are significantly different.

Level		Mean
3	A	4.666667
2	A	3.000000
1	A	1.000000

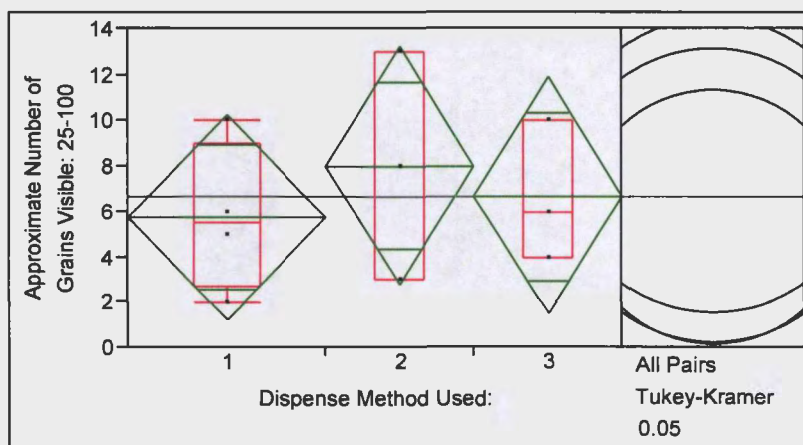
Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
3	1	3.66667	2.460804	-3.58035	10.91368	0.3514	
2	1	2.00000	2.460804	-5.24701	9.24701	0.7076	
3	2	1.66667	2.630710	-6.08072	9.41405	0.8071	



Data Table=Day=1,Linked Subset=This subset is linked to Untitled Rozol bait,Day=1

## Oneway Analysis of Approximate Number of Grains Visible: 25-100 By Dispense Method Used: Day=1



### Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	2	2	2.75	5.5	9	10	10
2	3	3	3	8	13	13	13
3	4	4	4	6	10	10	10

### Oneway Anova Summary of Fit

Rsquare	0.078868
Adj Rsquare	-0.18431
Root Mean Square Error	3.806323
Mean of Response	6.7
Observations (or Sum Wgts)	10

### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	8.68333	4.3417	0.2997	0.7501
Error	7	101.41667	14.4881		
C. Total	9	110.10000			

### Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	5.75000	1.9032	1.2497	10.250
2	3	8.00000	2.1976	2.8035	13.196
3	3	6.66667	2.1976	1.4702	11.863

Std Error uses a pooled estimate of error variance

### Means Comparisons

#### Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha
	2.94498	0.05
Abs(Dif)-LSD		
2	-9.15255	
3	-7.81921	
1	-6.31142	

Abs(Dif)-LSD	2	3	1
3	-7.81921	-9.15255	-7.64476
1	-6.31142	-7.64476	-7.92634

Positive values show pairs of means that are significantly different.

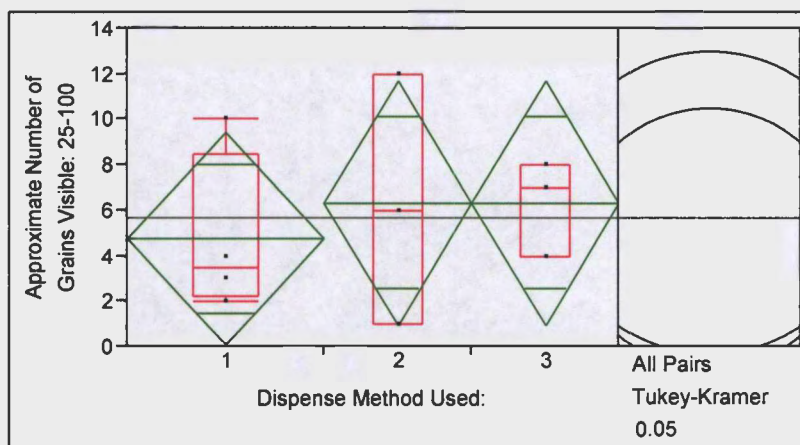
Level		Mean
2	A	8.000000
3	A	6.666667
1	A	5.750000

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
2	1	2.250000	2.907127	-6.31142	10.81142	0.7297	
2	3	1.333333	3.107850	-7.81921	10.48588	0.9048	
3	1	0.916667	2.907127	-7.64476	9.47809	0.9471	

Data Table=Day=2,Linked Subset=This subset is linked to Untitled Rozol bait,Day=2

### Oneway Analysis of Approximate Number of Grains Visible: 25-100 By Dispense Method Used: Day=2



#### Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	2	2	2.25	3.5	8.5	10	10
2	1	1	1	6	12	12	12
3	4	4	4	7	8	8	8

#### Oneway Anova Summary of Fit

Rsquare	0.052732
Adj Rsquare	-0.21792
Root Mean Square Error	3.929437
Mean of Response	5.7
Observations (or Sum Wgts)	10

#### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	6.01667	3.0083	0.1948	0.8273



Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Error	7	108.08333	15.4405		
C. Total	9	114.10000			

### Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	4.75000	1.9647	0.10418	9.396
2	3	6.33333	2.2687	0.96880	11.698
3	3	6.33333	2.2687	0.96880	11.698

Std Error uses a pooled estimate of error variance

### Means Comparisons

#### Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha		
	2.94498	0.05		
Abs(Dif)-LSD		2	3	1
2		-9.44858	-9.44858	-7.25501
3		-9.44858	-9.44858	-7.25501
1		-7.25501	-7.25501	-8.18271

Positive values show pairs of means that are significantly different.

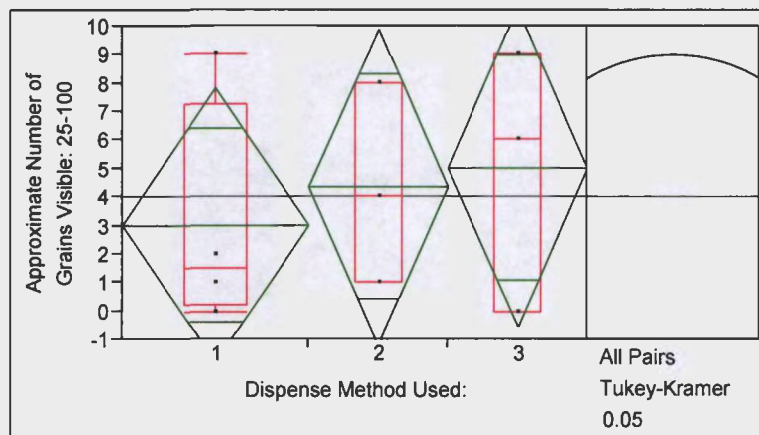
Level		Mean
2	A	6.333333
3	A	6.333333
1	A	4.750000

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
2	1	1.583333	3.001157	-7.25501	10.42167	0.8606	
3	1	1.583333	3.001157	-7.25501	10.42167	0.8606	
3	2	0.000000	3.208372	-9.44858	9.44858	1.0000	

Data Table=Day=3,Linked Subset=This subset is linked to Untitled Rozol bait,Day=3

### Oneway Analysis of Approximate Number of Grains Visible: 25-100 By Dispense Method Used: Day=3



### Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	0.25	1.5	7.25	9	9
2	1	1	1	4	8	8	8
3	0	0	0	6	9	9	9

### Oneway Anova Summary of Fit

Rsquare	0.05914
Adj Rsquare	-0.20968
Root Mean Square Error	4.082483
Mean of Response	4
Observations (or Sum Wgts)	10

### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	7.33333	3.6667	0.2200	0.8079
Error	7	116.66667	16.6667		
C. Total	9	124.00000			

### Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	3.00000	2.0412	-1.827	7.827
2	3	4.33333	2.3570	-1.240	9.907
3	3	5.00000	2.3570	-0.573	10.573

Std Error uses a pooled estimate of error variance

### Means Comparisons

#### Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha			
	2.94498	0.05			
Abs(Dif)-LSD			3	2	1
3			-9.81659	-9.14993	-7.18258
2			-9.14993	-9.81659	-7.84925
1			-7.18258	-7.84925	-8.50142

Positive values show pairs of means that are significantly different.

Level	Mean
3	5.0000000
2	4.3333333
1	3.0000000

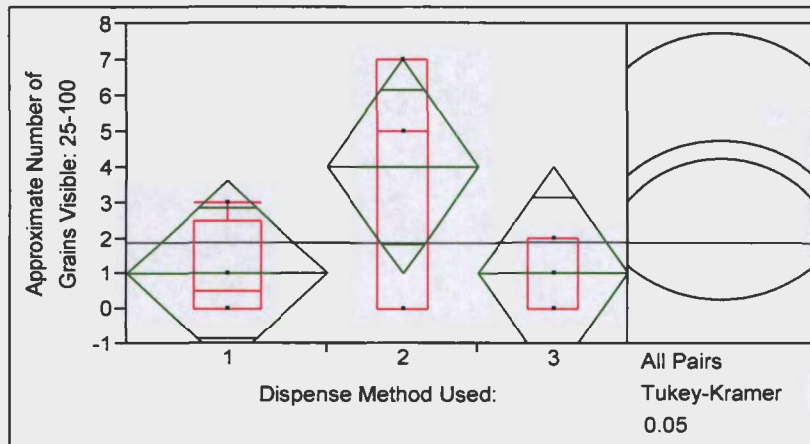
Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
3	1	2.000000	3.118048	-7.18258	11.18258	0.8029	
2	1	1.333333	3.118048	-7.84925	10.51591	0.9054	
3	2	0.666667	3.333333	-9.14993	10.48326	0.9783	

Data Table=Day=4,Linked Subset=This subset is linked to Untitled Rozol bait,Day=4



# **Oneway Analysis of Approximate Number of Grains Visible: 25-100 By Dispense Method Used: Day=4**



## **Quantiles**

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	0	0.5	2.5	3	3
2	0	0	0	5	7	7	7
3	0	0	0	1	2	2	2

## **Oneway Anova Summary of Fit**

Rsquare	0.357278
Adj Rsquare	0.173643
Root Mean Square Error	2.203893
Mean of Response	1.9
Observations (or Sum Wgts)	10

## **Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	18.900000	9.45000	1.9456	0.2129
Error	7	34.000000	4.85714		
C. Total	9	52.900000			

## **Means for Oneway Anova**

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	1.00000	1.1019	-1.606	3.6057
2	3	4.00000	1.2724	0.991	7.0088
3	3	1.00000	1.2724	-2.009	4.0088

Std Error uses a pooled estimate of error variance

## **Means Comparisons**

### **Comparisons for all pairs using Tukey-Kramer HSD**

	q*	Alpha		
	2.94498	0.05		
Abs(Dif)-LSD	2	1	3	
2	-5.2994	-1.95714	-2.2994	
1	-1.95714	-4.58942	-4.95714	
3	-2.2994	-4.95714	-5.2994	

Positive values show pairs of means that are significantly different.

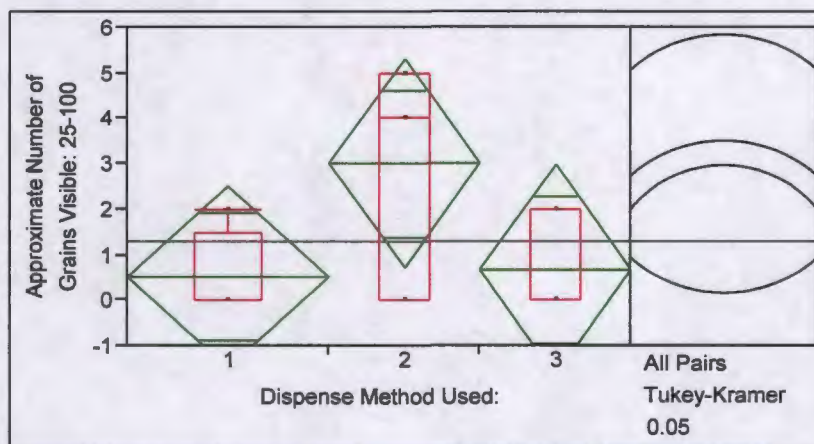
Level		Mean
2	A	4.000000
1	A	1.000000
3	A	1.000000

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
2	1	3.000000	1.683251	-1.95714	7.957136	0.2433	
2	3	3.000000	1.799471	-2.29940	8.299401	0.2821	
3	1	0.000000	1.683251	-4.95714	4.957136	1.0000	

Data Table=Day=5,Linked Subset=This subset is linked to Untitled Rozol bait,Day=5

### Oneway Analysis of Approximate Number of Grains Visible: 25-100 By Dispense Method Used: Day=5



#### Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	0	0	1.5	2	2
2	0	0	0	4	5	5	5
3	0	0	0	0	2	2	2

#### Oneway Anova Summary of Fit

Rsquare	0.387331
Adj Rsquare	0.212283
Root Mean Square Error	1.676163
Mean of Response	1.3
Observations (or Sum Wgts)	10

#### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	12.433333	6.21667	2.2127	0.1800
Error	7	19.666667	2.80952		
C. Total	9	32.100000			



# Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	0.50000	0.83808	-1.482	2.4817
2	3	3.00000	0.96773	0.712	5.2883
3	3	0.66667	0.96773	-1.622	2.9550

Std Error uses a pooled estimate of error variance

## Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha		
	2.94498	0.05		
Abs(Dif)-LSD		2	3	1
2		-4.03044	-1.69711	-1.27013
3		-1.69711	-4.03044	-3.60347
1		-1.27013	-3.60347	-3.49047

Positive values show pairs of means that are significantly different.

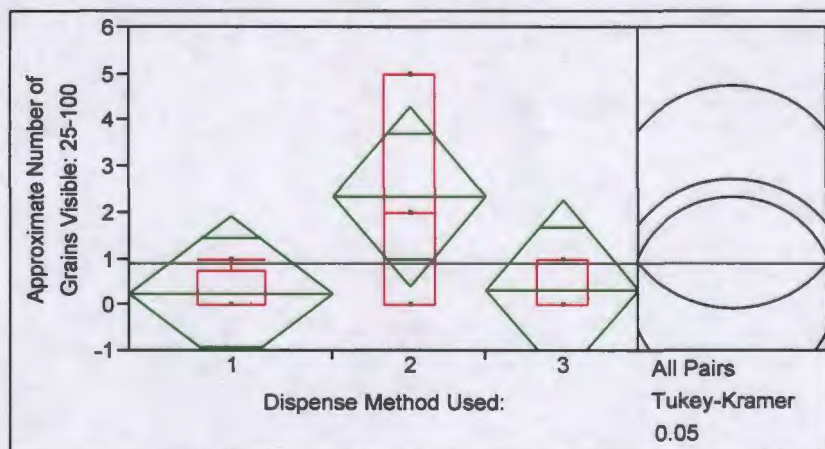
Level	Mean
2 A	3.0000000
3 A	0.6666667
1 A	0.5000000

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
2	1	2.500000	1.280191	-1.27013	6.270134	0.1943	
2	3	2.333333	1.368582	-1.69711	6.363776	0.2688	
3	1	0.166667	1.280191	-3.60347	3.936800	0.9907	

Data Table=Day=6,Linked Subset=This subset is linked to Untitled Rozol bait,Day=6

## Oneway Analysis of Approximate Number of Grains Visible: 25-100 By Dispense Method Used: Day=6



## Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	0	0	0.75	1	1
2	0	0	0	2	5	5	5

Level	Minimum	10%	25%	Median	75%	90%	Maximum
3	0	0	0	0	1	1	1

### Oneway Anova Summary of Fit

Rsquare	0.385007
Adj Rsquare	0.209295
Root Mean Square Error	1.418416
Mean of Response	0.9
Observations (or Sum Wgts)	10

### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	8.816667	4.40833	2.1911	0.1824
Error	7	14.083333	2.01190		
C. Total	9	22.900000			

### Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	0.25000	0.70921	-1.427	1.9270
2	3	2.33333	0.81892	0.397	4.2698
3	3	0.33333	0.81892	-1.603	2.2698

Std Error uses a pooled estimate of error variance

### Means Comparisons




#### Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha		
	2.94498	0.05		
Abs(Dif)-LSD		2	3	1
2		-3.41067	-1.41067	-1.10706
3		-1.41067	-3.41067	-3.10706
1		-1.10706	-3.10706	-2.95373

Positive values show pairs of means that are significantly different.

Level	Mean
2	A 2.3333333
3	A 0.3333333
1	A 0.2500000

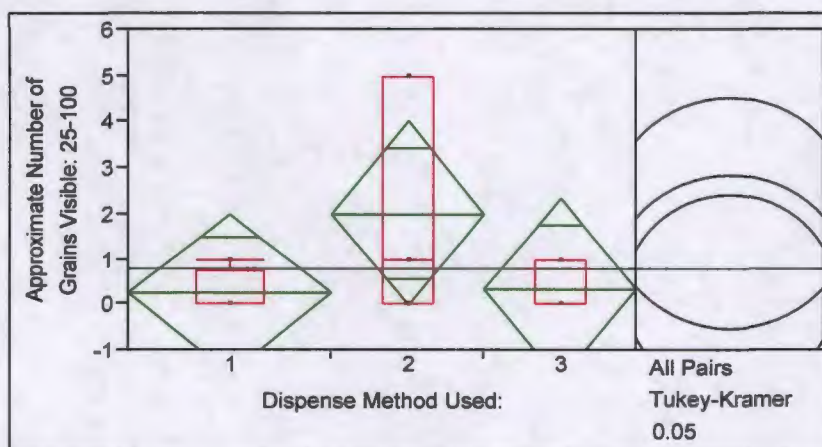
Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
2	1	2.083333	1.083333	-1.10706	5.273726	0.2021	
2	3	2.000000	1.158132	-1.41067	5.410673	0.2613	
3	1	0.083333	1.083333	-3.10706	3.273726	0.9967	

Data Table=Day=7,Linked Subset=This subset is linked to Untitled Rozol bait,Day=7



# **Oneway Analysis of Approximate Number of Grains Visible: 25-100 By Dispense Method Used: Day=7**



## **Quantiles**

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	0	0	0.75	1	1
2	0	0	0	1	5	5	5
3	0	0	0	0	1	1	1

## **Oneway Anova Summary of Fit**

Rsquare	0.286265
Adj Rsquare	0.082341
Root Mean Square Error	1.484042
Mean of Response	0.8
Observations (or Sum Wgts)	10

## **Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	6.183333	3.09167	1.4038	0.3072
Error	7	15.416667	2.20238		
C. Total	9	21.600000			

## **Means for Oneway Anova**

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	0.25000	0.74202	-1.505	2.0046
2	3	2.00000	0.85681	-0.026	4.0260
3	3	0.33333	0.85681	-1.693	2.3594

Std Error uses a pooled estimate of error variance

## **Means Comparisons**



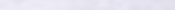
### **Comparisons for all pairs using Tukey-Kramer HSD**

comparisons for all pairs using Tukey Kramer HSD			
	q*	Alpha	
	2.94498	0.05	
Abs(Dif)-LSD	2	3	1
2	-3.56847	-1.90181	-1.588
3	-1.90181	-3.56847	-3.25467
1	-1.588	-3.25467	-3.09039

Positive values show pairs of means that are significantly different.

Level		Mean
2	A	2.0000000
3	A	0.3333333
1	A	0.2500000

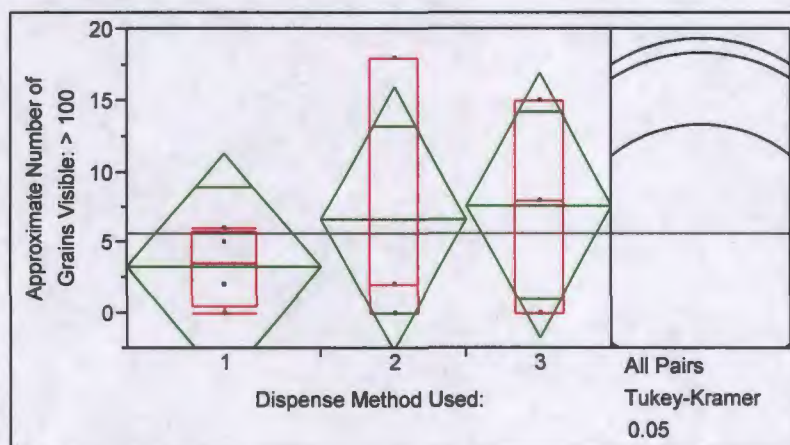
Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
2	1	1.750000	1.133456	-1.58800	5.088002	0.3291	
2	3	1.666667	1.211715	-1.90181	5.235141	0.4026	
3	1	0.083333	1.133456	-3.25467	3.421335	0.9970	



Data Table=Day=1,Linked Subset=This subset is linked to Untitled Rozol bait,Day=1

# **Oneway Analysis of Approximate Number of Grains Visible: > 100 By Dispense Method Used: Day=1**



## **Quantiles**

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	0.5	3.5	5.75	6	6
2	0	0	0	2	18	18	18
3	0	0	0	8	15	15	15

## **Oneway Anova Summary of Fit**

Rsquare	0.104008
Adj Rsquare	-0.15199
Root Mean Square Error	6.866932
Mean of Response	5.6
Observations (or Sum Wgts)	10

## **Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	38.31667	19.1583	0.4063	0.6809
Error	7	330.08333	47.1548		
C. Total	9	368.40000			

## **Means for Oneway Anova**

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	3.25000	3.4335	-4.869	11.369
2	3	6.66667	3.9646	-2.708	16.042
3	3	7.66667	3.9646	-1.708	17.042

Std Error uses a pooled estimate of error variance

## **Means Comparisons**

### **Comparisons for all pairs using Tukey-Kramer HSD**

	q*	Alpha	
	2.94498	0.05	
Abs(Dif)-LSD			
3		3	2
		-16.512	-15.512
			1
			-11.0289

Abs(Dif)-LSD	3	2	1
2	-15.512	-16.512	-12.0289
1	-11.0289	-12.0289	-14.2998

Positive values show pairs of means that are significantly different.

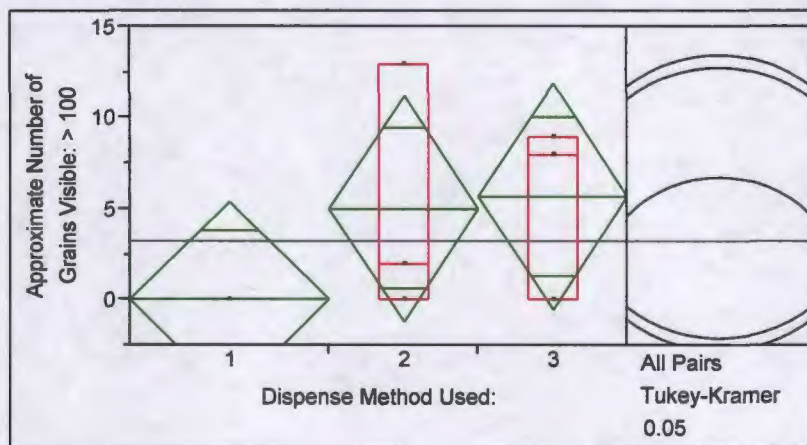
Level		Mean
3	A	7.666667
2	A	6.666667
1	A	3.250000

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
3	1	4.416667	5.244706	-11.0289	19.86221	0.6907	
2	1	3.416667	5.244706	-12.0289	18.86221	0.7975	
3	2	1.000000	5.606827	-15.5120	17.51198	0.9827	

Data Table=Day=2,Linked Subset=This subset is linked to Untitled Rozol bait,Day=2

### Oneway Analysis of Approximate Number of Grains Visible: > 100 By Dispense Method Used: Day=2



### Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	0	0	0	0	0
2	0	0	0	2	13	13	13
3	0	0	0	8	9	9	9

### Oneway Anova Summary of Fit

Rsquare	0.319728
Adj Rsquare	0.125364
Root Mean Square Error	4.577377
Mean of Response	3.2
Observations (or Sum Wgts)	10

### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	68.93333	34.4667	1.6450	0.2597



Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Error	7	146.66667	20.9524		
C. Total	9	215.60000			

### Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	0.00000	2.2887	-5.412	5.412
2	3	5.00000	2.6427	-1.249	11.249
3	3	5.66667	2.6427	-0.582	11.916

Std Error uses a pooled estimate of error variance

### Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha	
	2.94498	0.05	
Abs(Dif)-LSD	3	2	1
3	-11.0066	-10.3399	-4.62906
2	-10.3399	-11.0066	-5.29573
1	-4.62906	-5.29573	-9.53199

Positive values show pairs of means that are significantly different.

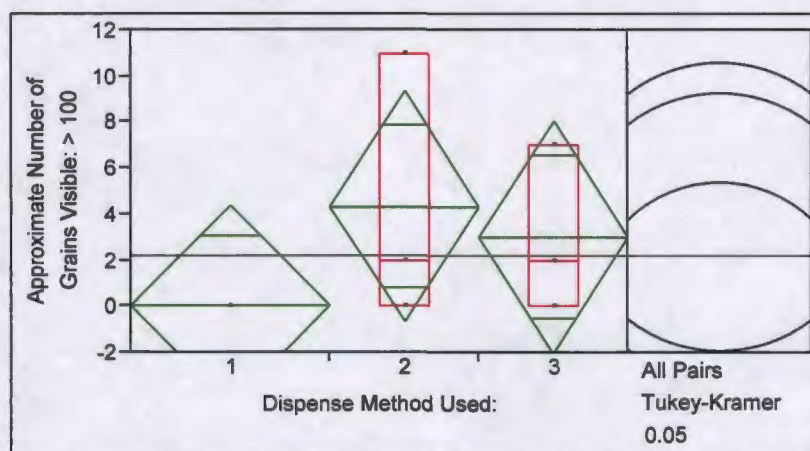
Level		Mean
3	A	5.666667
2	A	5.000000
1	A	0.000000

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
3	1	5.666667	3.496029	-4.6291	15.96240	0.2991	
2	1	5.000000	3.496029	-5.2957	15.29573	0.3775	
3	2	0.666667	3.737413	-10.3399	11.67326	0.9827	

Data Table=Day=3,Linked Subset=This subset is linked to Untitled Rozol bait,Day=3

### Oneway Analysis of Approximate Number of Grains Visible: > 100 By Dispense Method Used: Day=3



### Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	0	0	0	0	0
2	0	0	0	2	11	11	11
3	0	0	0	2	7	7	7

### Oneway Anova Summary of Fit

Rsquare	0.269547
Adj Rsquare	0.060847
Root Mean Square Error	3.677473
Mean of Response	2.2
Observations (or Sum Wgts)	10

### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	34.93333	17.4667	1.2915	0.3331
Error	7	94.66667	13.5238		
C. Total	9	129.60000			

### Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	0.00000	1.8387	-4.348	4.3479
2	3	4.33333	2.1232	-0.687	9.3539
3	3	3.00000	2.1232	-2.021	8.0205

Std Error uses a pooled estimate of error variance

### Means Comparisons

#### Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha		
	2.94498	0.05		
Abs(Dif)-LSD		2	3	1
2		-8.84272	-7.50939	-3.93827
3		-7.50939	-8.84272	-5.27161
1		-3.93827	-5.27161	-7.65802

Positive values show pairs of means that are significantly different.

Level	Mean
2	A 4.333333
3	A 3.000000
1	A 0.000000

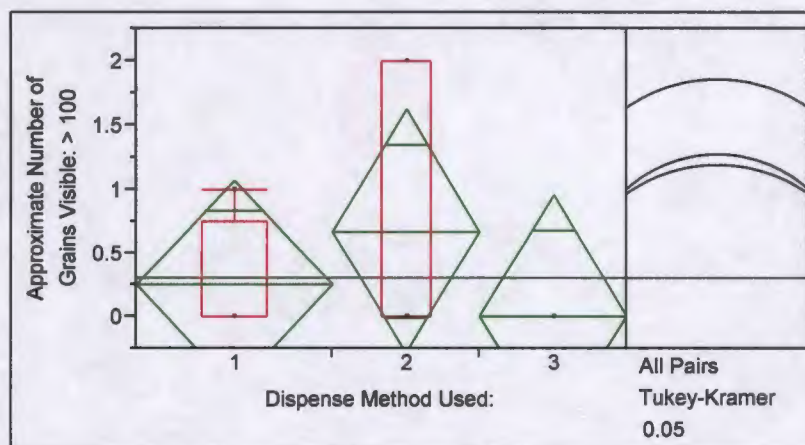
Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
2	1	4.333333	2.808717	-3.93827	12.60494	0.3295	
3	1	3.000000	2.808717	-5.27161	11.27161	0.5615	
2	3	1.333333	3.002644	-7.50939	10.17605	0.8985	

Data Table=Day=4,Linked Subset=This subset is linked to Untitled Rozol bait,Day=4



# **Oneway Analysis of Approximate Number of Grains Visible: > 100 By Dispense Method Used: Day=4**



## **Quantiles**

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	0	0	0.75	1	1
2	0	0	0	0	2	2	2
3	0	0	0	0	0	0	0

## **Oneway Anova Summary of Fit**

Rsquare	0.166667
Adj Rsquare	-0.07143
Root Mean Square Error	0.698638
Mean of Response	0.3
Observations (or Sum Wgts)	10

## **Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	0.6833333	0.341667	0.7000	0.5283
Error	7	3.4166667	0.488095		
C. Total	9	4.1000000			

## **Means for Oneway Anova**

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	0.250000	0.34932	-0.5760	1.0760
2	3	0.666667	0.40336	-0.2871	1.6205
3	3	0.000000	0.40336	-0.9538	0.9538

Std Error uses a pooled estimate of error variance

## **Means Comparisons**

### **Comparisons for all pairs using Tukey-Kramer HSD**

	q*	Alpha	
	2.94498	0.05	
Abs(Dif)-LSD			
2		2	1
1		-1.67992	-1.15475
3		-1.15475	-1.45485
		-1.01325	-1.32142
		-1.67992	-1.01325

Positive values show pairs of means that are significantly different.

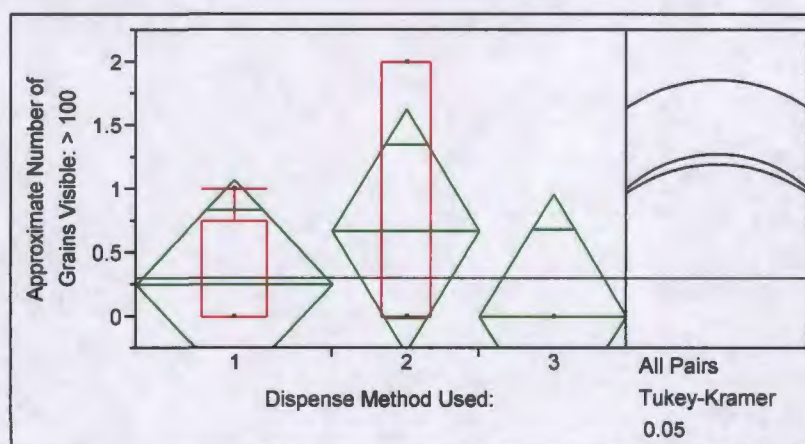
Level		Mean
2	A	0.66666667
1	A	0.25000000
3	A	0.00000000

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
2	3	0.6666667	0.5704356	-1.01325	2.346587	0.5065	
2	1	0.4166667	0.5335937	-1.15475	1.988088	0.7258	
1	3	0.2500000	0.5335937	-1.32142	1.821421	0.8879	

Data Table=Day=5,Linked Subset=This subset is linked to Untitled Rozol bait,Day=5

### Oneway Analysis of Approximate Number of Grains Visible: > 100 By Dispense Method Used: Day=5



### Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	0	0	0.75	1	1
2	0	0	0	0	2	2	2
3	0	0	0	0	0	0	0

### Oneway Anova Summary of Fit

Rsquare	0.166667
Adj Rsquare	-0.07143
Root Mean Square Error	0.698638
Mean of Response	0.3
Observations (or Sum Wgts)	10

### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	0.6833333	0.341667	0.7000	0.5283
Error	7	3.416667	0.488095		
C. Total	9	4.1000000			



# Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	0.250000	0.34932	-0.5760	1.0760
2	3	0.666667	0.40336	-0.2871	1.6205
3	3	0.000000	0.40336	-0.9538	0.9538

Std Error uses a pooled estimate of error variance

## Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

q\* 2.94498  
Alpha 0.05

Abs(Dif)-LSD	2	1	3
2	-1.67992	-1.15475	-1.01325
1	-1.15475	-1.45485	-1.32142
3	-1.01325	-1.32142	-1.67992

Positive values show pairs of means that are significantly different.

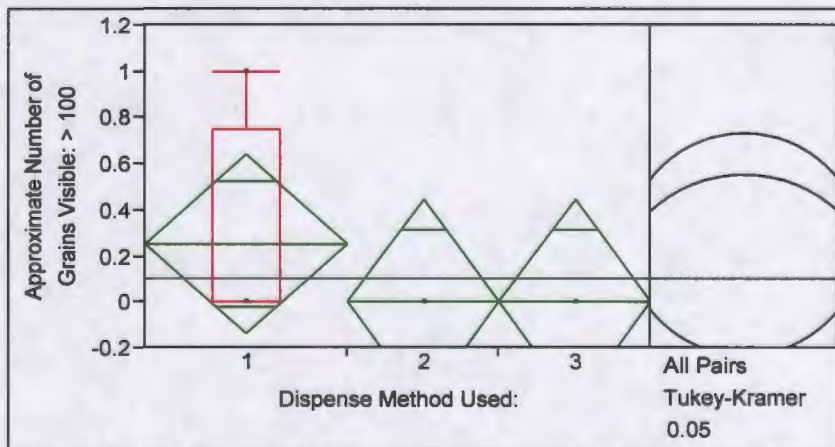
Level	Mean
2 A	0.6666667
1 A	0.2500000
3 A	0.0000000

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
2	3	0.666667	0.5704356	-1.01325	2.346587	0.5065	
2	1	0.416667	0.5335937	-1.15475	1.988088	0.7258	
1	3	0.250000	0.5335937	-1.32142	1.821421	0.8879	

Data Table=Day=6,Linked Subset=This subset is linked to Untitled Rozol bait,Day=6

## Oneway Analysis of Approximate Number of Grains Visible: > 100 By Dispense Method Used: Day=6



## Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	0	0	0.75	1	1
2	0	0	0	0	0	0	0

Level	Minimum	10%	25%	Median	75%	90%	Maximum
3	0	0	0	0	0	0	0

### Oneway Anova Summary of Fit

Rsquare	0.166667
Adj Rsquare	-0.07143
Root Mean Square Error	0.327327
Mean of Response	0.1
Observations (or Sum Wgts)	10

### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	0.15000000	0.075000	0.7000	0.5283
Error	7	0.75000000	0.107143		
C. Total	9	0.90000000			

### Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	0.250000	0.16366	-0.1370	0.63700
2	3	0.000000	0.18898	-0.4469	0.44687
3	3	0.000000	0.18898	-0.4469	0.44687

Std Error uses a pooled estimate of error variance

### Means Comparisons

#### Comparisons for all pairs using Tukey-Kramer HSD

	q*	Alpha
	2.94498	0.05
Abs(Dif)-LSD		
1		
2		
3		

Positive values show pairs of means that are significantly different.

Level	Mean
1	0.25000000
2	0.00000000
3	0.00000000

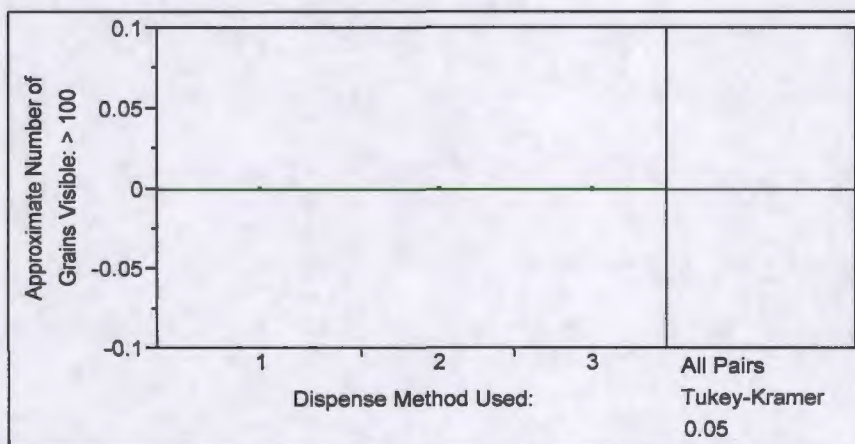
Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
1	2	0.250000	0.250000	-0.486244	0.9862444	0.6000	
1	3	0.250000	0.250000	-0.486244	0.9862444	0.6000	
3	2	0.000000	0.2672612	-0.787078	0.7870784	1.0000	

Data Table=Day=7,Linked Subset=This subset is linked to Untitled Rozol bait,Day=7



# **Oneway Analysis of Approximate Number of Grains Visible: > 100 By Dispense Method Used: Day=7**



## **Quantiles**

Level	Minimum	10%	25%	Median	75%	90%	Maximum
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0

## **Oneway Anova Summary of Fit**

Rsquare	.
Adj Rsquare	.
Root Mean Square Error	0
Mean of Response	0
Observations (or Sum Wgts)	10

## **Analysis of Variance**

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Dispense Method Used:	2	0	0	.	.
Error	7	0	0		
C. Total	9	0			

## **Means for Oneway Anova**

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
1	4	0	0	0	0
2	3	0	0	0	0
3	3	0	0	0	0

Std Error uses a pooled estimate of error variance

## **Means Comparisons**

### **Comparisons for all pairs using Tukey-Kramer HSD**

	q*	Alpha	
	2.94498	0.05	
Abs(Dif)-LSD	1	2	3
1	0	0	0
2	0	0	0
3	0	0	0

Positive values show pairs of means that are significantly different.

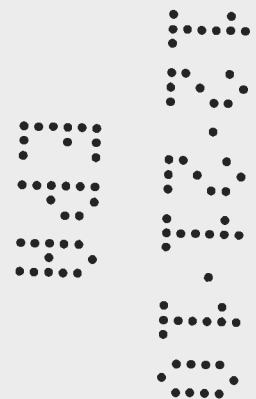
Level	Mean
1	0
2	0
3	0

Levels not connected by same letter are significantly different.

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	Difference
2	1	0	0	0	0	.	=====
3	1	0	0	0	0	.	=====
3	2	0	0	0	0	.	=====



## Letters of Support





2627 KFB Plaza, Manhattan, Kansas 66503-8906 • 785-587-6000 • Fax 785-587-6914 • www.kfb.org  
800 SW Jackson St., Ste. 1300, Topeka, Kansas 66612-1219 • 785-234-4535 • Fax 785-234-0278

Mr. Dan Tuggle  
Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

Re: Request for Special Local Need use for Mechanical Applicators

Dear Mr. Tuggle,

It has come to the attention of Kansas Farm Bureau through our members that the practice of using mechanical baiters to apply Rozol Prairie Dog Bait is being denied due to wording on the product label, specifically "*Application Method: Hand application of bait, at least 6 inches down prairie dog burrows.*" Previously the label in Kansas did not have a "by hand only" limitation. This restriction and interpretation is having a negative impact on our farmer/rancher members in their efforts to control prairie dogs and maintain their private property for standard farming and ranching activities. The net effect of this is a reduction in the economic productivity of those farms and ranches.

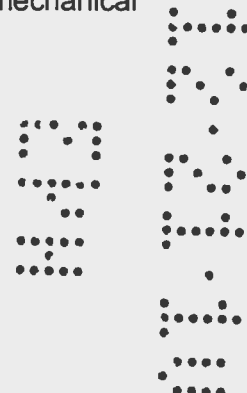
Historically, licensed individuals have been using mechanical baiters without incidence of off-label use or secondary hazard to wildlife. These mechanical devices provide a reliable and precise application method that ensures application is performed in a safe manner specific to label requirements. Additionally, mechanical baiters reduce the chances of exposure to humans by compartmentalizing the bait and reduce the chances of accidental human error during application. In short, the mechanical applicator is a better method than hand application.

These devices provide a time-effective method for treatment. Without the use of the devices, infestations are likely to expand due to greater numbers of hours spent over fewer acres. If infestations increase, the chances of plague increase in the prairie dog populations, then chances increase for human exposure to plague. Clearly a higher risk of plague is not desirable.

We request that a "Special Local Need" 24(c) registration be issued to allow Rozol Prairie Dog Bait to be applied down the burrow with the assistance of mechanical application devices.

Sincerely,

Steve M. Swaffar, Director of Natural Resources  
Kansas Farm Bureau





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NOV 24 2010



November 22, 2010

**K-State Research and Extension  
Department of Animal Sciences  
and Industry**

139 Call Hall  
Manhattan, KS 66506-1600  
785-532-5654  
Fax: 785-532-5681

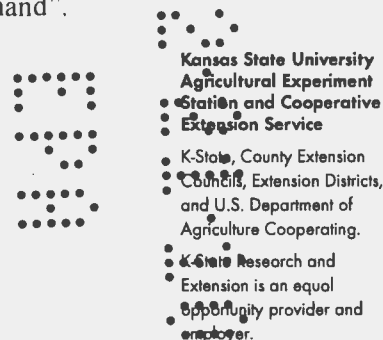
Dan Tuggle  
Kansas Department of Agriculture  
Pesticide and Fertilizer Program  
109 SW 9<sup>th</sup>  
Topeka, KS 66612

Dear Mr. Tuggle:

Thank you for sending the information concerning the interpretation from the Environment Protection Agency (EPA) on mechanical vs hand application of Rozol Prairie Dog Bait (EPA Reg. No. 7173-286). That interpretation of the label has the potential to cause major problems for applicators including increased health risks. It seems incomprehensible that an agency with the stated purpose to "protect human health and the environment from unreasonable adverse effects associated with pesticides" would now require application of a toxicant by hand. I am not aware of any data or scientific study that would suggest only hand application should be allowed. The mechanical dispensing devices commonly used to help manage prairie dogs allow more accurate placement of the bait, more accurate amount of the bait applied at each burrow and improved human safety. As you are aware the original 24-C label for Rozol in Kansas allowed either mechanical or hand application.

As a co-author of the field efficacy study (MRID47333602) that was submitted to EPA, both hand application and machine application of baits occurred. EPA approved the protocol that allowed the use of a mechanical bait dispensing device.

I am assuming this interpretation also applies to other products like 2% zinc phosphide (ZP) baits. Of the eleven ZP baits registered in Kansas, I could only find one label (Kansas 24-C label for in-burrow application of ZP Rodent Bait Ag (Reg. No. 12455-102)) that would allow mechanical application. That label has language that is somewhat unclear as it would allow baiting "by hand or with an appropriate dispensing device...". If there are other products that can be mechanically applied I would appreciate knowing which ones would allow a more efficient means of application than by "hand".



*"Knowledge  
for Life"*

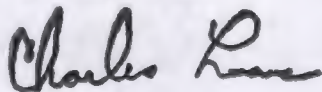
Potential problems:

- 1.) Applicator safety will be jeopardized, as they will be forced into closer contact with the bait with hand application. At times, rattlesnakes are sunning just instead the burrow opening and delivering the bait by hand would make the applicator more susceptible to envenomation.
- 2.) Prairie dog management will not be accomplished effectively or efficiently. Studies have shown prairie dog populations can increase more than 50% each year in unmanaged situations, and the need to manage populations is acute in some settings.
- 3.) Applicators will be forced to apply bait by hand resulting in slow and inefficient management that results in higher costs per acre for labor and fewer acres treated on suitable days.
- 4.) Applicators will ignore the label and apply bait without regard to label language.
- 5.) Few alternatives exist. All ZP labels that I have been able to find except the 24-C in burrow label, require application by hand.
- 6.) Zinc phosphide has no antidote and the dust should not be inhaled. Hand application will significantly increase proximal exposure to the face of applicators and the likelihood of inhalation.
- 7.) Data that has been submitted to EPA concerning efficacy, bait availability on the surface, and carcass availability following Rozol treatments was collected for mechanical applications. Without data to support hand-only application, EPA's interpretation cannot be supported.
- 8.) Presently successful reintroduction projects for black-footed ferrets rely almost wholly on the ability to manage associated black-tailed prairie dog complexes. If implemented, this interpretation will threaten ongoing efforts to recover the ferrets and remove this species from state and federal endangered species lists.
- 9.) State Law K.S.A. 80-1201 and 80-1202 allows township boards to purchase materials and employ persons to destroy prairie dogs and they may make diligent efforts to exterminate prairie dogs. Adherence to the label by baiting by hand should not compromise their personal safety.

For these reasons I request that the State of Kansas approve a 24-C Special Local Needs label that allows for mechanical application of Rozol Prairie Dog Bait. Since we are in the middle of the treatment season and there are limited days available due to weather, such a label change constitutes an emergency and should be acted upon immediately, as alternatives are limited.

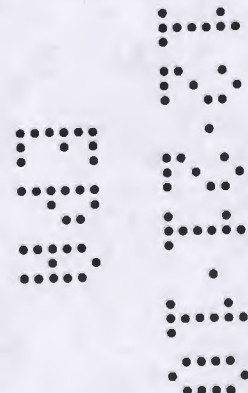
Thanks for considering this request.

Sincerely yours,



Charles Lee  
Extension Specialist, Wildlife  
Department of Animal Sciences and Industry  
Kansas State University  
131 Call Hall  
Manhattan, KS 66506  
785-532-5734  
[clec@ksu.edu](mailto:clec@ksu.edu)

Cc: Liphatech  
CL/ckb





Mr. Dan Tuggle  
Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

Re: Request for Special Local Need use for Mechanical Applicators

Dear Mr. Tuggle,

It has come to the attention of Kansas Farm Bureau through our members that the practice of using mechanical baiters to apply Rozol Prairie Dog Bait is being denied due to wording on the product label, specifically "*Application Method: Hand application of bait, at least 6 inches down prairie dog burrows.*" Previously the label in Kansas did not have a "by hand only" limitation. This restriction and interpretation is having a negative impact on our farmer/rancher members in their efforts to control prairie dogs and maintain their private property for standard farming and ranching activities. The net effect of this is a reduction in the economic productivity of those farms and ranches.

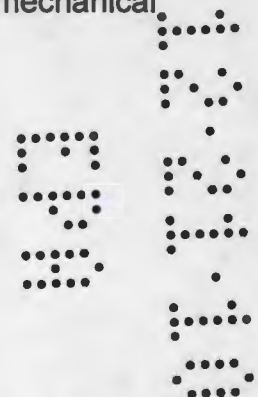
Historically, licensed individuals have been using mechanical baiters without incidence of off-label use or secondary hazard to wildlife. These mechanical devices provide a reliable and precise application method that ensures application is performed in a safe manner specific to label requirements. Additionally, mechanical baiters reduce the chances of exposure to humans by compartmentalizing the bait and reduce the chances of accidental human error during application. In short, the mechanical applicator is a better method than hand application.

These devices provide a time-effective method for treatment. Without the use of the devices, infestations are likely to expand due to greater numbers of hours spent over fewer acres. If infestations increase, the chances of plague increase in the prairie dog populations, then chances increase for human exposure to plague. Clearly a higher risk of plague is not desirable.

We request that a "Special Local Need" 24(c) registration be issued to allow Rozol Prairie Dog Bait to be applied down the burrow with the assistance of mechanical application devices.

Sincerely,

Steve Baccus, President  
Kansas Farm Bureau



Alan D. Stevenson  
Director-Stanton County Noxious Weed Dept.  
111 North Frontage Road  
P.O. Box 231  
Johnson, KS 67855  
(620) 492-2141  
[weeddept@pld.com](mailto:weeddept@pld.com)

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
To permit use of mechanical applicators for burrow baiting.

To whom it may concern,

It has come to my attention that our recent use practice of using mechanical baiters to apply Rozol Prairie Dog Bait may now be questioned by some enforcement authorities driven by the wording "hand" shown on the Sec. 3 product label.

3. Application Method: Hand application of bait, at least 6 inches down prairie dog burrows.

As you know, earlier 24(c) labels issued for states including KS, NE and WY dating back to 2006 did not have such a "by hand only" limitation.

#### JUSTIFICATION

Weed boards and licensed custom applicators have been using mechanical baiters responsibly for years without incidence of off-label use or secondary hazard to wildlife. These mechanical devices are calibrated and reliable. The devices are critical to our ability to manage the spread of this pest, and apply bait accurately in a time-efficient and cost-effective manner. Mechanical baiters are essential to avoiding human error and fatigue, as well as to enable getting the bait out during limited periods of favorable weather following snow melt during the short application window. There is simply no other method as effective at treating the extensive acreage, ensuring all active burrows are treated, and guaranteeing that the bait is "six inches down-the-burrow" according to the label.

Restricting the label to "by hand only" will make it virtually impossible to treat large infestations of 100's of acres walking around with a ladle and a bucket.

I would like to reiterate by permission, the following as provided by Mr. Charles Lee, Extension Specialist, Wildlife, Department of Animal Sciences and Industry, of Kansas State University.

#### "Potential problems:

- 1.) Applicator safety will be jeopardized, as they will be forced into closer contact with the bait with hand application. At times, rattlesnakes are sunning just inside the burrow opening and delivering the bait by hand would make the applicator highly susceptible to envenomation.
- 2.) Prairie dog management will not be accomplished effectively or efficiently. Studies have shown prairie dog populations can increase more than 50% each year in unmanaged situations, and the need to manage populations is acute in some settings.
- 3.) Applicators will be forced to apply bait by hand resulting in slow and inefficient management that results in higher costs per acre for labor and fewer acres treated on suitable days.
- 4.) Applicators will ignore the label and apply bait without regard to label language.



- 5.) Few alternatives exist. All ZP labels that I have been able to find except the 24-C in burrow label, require application by hand.
- 6.) Zinc phosphide has no antidote and the dust should not be inhaled. Hand application will significantly increase proximal exposure to the face of applicators and the likelihood of inhalation.
- 7.) Data that has been submitted to EPA concerning efficacy, bait availability on the surface, and carcass availability following Rozol treatments was collected for mechanical applications. Without data to support hand-only application, EPA's interpretation cannot be supported.
- 8.) Presently successful reintroduction projects for black-footed ferrets rely almost wholly on the ability to manage associated black-tailed prairie dog complexes. If implemented, this interpretation will threaten ongoing efforts to recover the ferrets and remove this species from state and federal endangered species lists.
- 9.) State Law K.S.A. 80-1201 and 80-1202 allows township boards to purchase materials and employ persons to destroy prairie dogs and they may make diligent efforts to exterminate prairie dogs. Adherence to the label by baiting by hand should not compromise their personal safety."

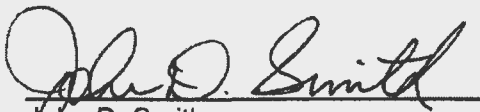
For these reasons I request that the State of Kansas approve a 24-C Special Local Needs label that allows for mechanical application of Rozol Prairie Dog Bait. Since we are in the middle of the treatment season and there are limited days available due to weather, such a label change constitutes an emergency and should be acted upon immediately, as alternatives are limited.

Thanks for considering this request.

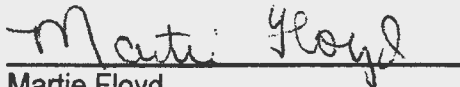
Sincerely,



Director-Stanton County Noxious Weed Dept.



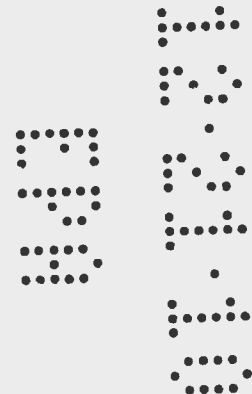
John D. Smith  
Chairman, Stanton County Board of Commissioners  
P.O. Box 190  
Johnson, Kansas 67855



Martie Floyd  
Member, Stanton County Board of Commissioners



Shannon Dimitt  
Member, Stanton County Board of Commissioners



## BOARD OF COUNTY COMMISSIONERS WICHITA COUNTY

PO Box 968  
Leoti, KS 67861  
PHONE: 620.375.2731  
FAX: 620.375.4350

December 2, 2010

Kansas Department of Agriculture  
Pesticide Registration  
109 SW 9<sup>th</sup> Street  
Topeka KS 66612

Thank you for reading this letter. It conveys some serious concerns we have as Wichita County Commissioners. We try to represent the best interest of our farmers, cattlemen, landowners and taxpayers. We have been notified that the mechanical devices used for application of Rozel Prairie Dog Bait may now be considered an off-label method of application. It now states "hand application" only.

We would like to express our strong support for registering Section 24 (c) "Special Local Need" for Rozel Prairie Dog Bait EPA Reg. No. 7173-286 that would allow for mechanical application, including both measuring and dispensing. Please consider the rational and logical concerns we have listed below.

1. **Concerns on safety of our people handling this product.**  
In the Rozel Prairie Dog Bait Material Safety Data Sheet, it states that this product can produce cumulative toxicity with prolonged and repeated exposure. It may also be harmful if absorbed through the skin, so why would we want our applicators to use hand application only. Hand application also puts our personnel at danger: dealing with rattlesnakes that live in prairie dog towns; stepping in a prairie dog hole or getting poked by cactus.
2. **Controlling the prairie dogs.**  
Our County has had a major problem with prairie dogs for many years. In the past year, we have finally gotten control of the situation. We have not eradicated the prairie dogs. We only want to control them. We have spent thousands of dollars to do this as efficiently as possible. Mechanically dispensing this is easier on our personnel and reduces fatigue and possible injury. When fatigue is controlled, productivity increases. Hand measuring would be more inefficient, takes a lot more time, and would allow the prairie dog population to explode again.
3. **Getting it right.**  
When mechanically dispensing the bait, you get the right amount of bait down the hole each time. When hand baiting, there is always a chance of getting too much, or too little down the hole. There is also a chance of accidental spillage of the product.
4. **Positive results.**  
Since we started our control program, the grassland in our County has gotten so much better. Some areas had prairie dog population so dense; they had the ground so bare there was blowing dust problems. The control program has been very positive for our County and could not have been possible without the mechanical devices used for application.

Thank you for your time and please consider our request.

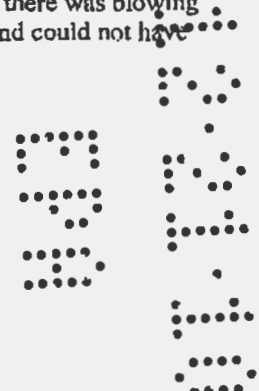
Vic Case



Steve Baker



Rex Whalen







# WALLACE COUNTY

## BOARD OF COUNTY COMMISSIONERS

PO Box 70  
313 Main Street  
Sharon Springs, KS 67758

District #1, Mr. Bruce Buck  
District #2, Mr. Michael Cowles  
District #3, Mr. Adam W. Smith, Chairman

Kansas Department of Agriculture  
Pesticide Registration  
109 SW 9<sup>th</sup> St  
Topeka, KS 66612

To whom it may concern,

Thank you for taking the time to read this letter, for it conveys a serious concern we have as Wallace County commissioners in representing the best interests of our landowners and taxpayers. It has come to our attention that the mechanical devices used for application of Rozel® Prairie Dog Bait may now be considered an off-label use in violation of the application method stating "hand application" only.

We would like to express our strong support for registering a Section 24 (c) "Special Local Need" for Rozel® Prairie Dog Bait (EPA Reg. No. 7173-286) which would allow for mechanical application, including both measuring and dispensing. Please take into consideration our rationale and logical concerns as listed below:

1. **We value the safety of our personnel responsible for handling and applying this product.** We do not believe that it is prudent to require hand application of a product that "May be harmful if absorbed through the skin", particularly when "prolonged and/or repeated exposure to small amounts of product can produce cumulative toxicity" as stated in the Rozel® Prairie Dog Bait Material Safety Data Sheet. Even with protective clothing, hand application increases the risk of exposure to the product. Hand application also puts our personnel in closer proximity to the prairie dog burrow, where there is a natural high probability of prairie dog predators such as rattlesnakes. This poses another large safety concern.
2. **Timely and efficient treatment is critical to achieve effective control.** For over 30 years, Wallace County has successfully implemented a prairie dog population control program. We have not eradicated the species; we have merely managed the population to where it is not a significant detriment to the farmers and ranchers. Mechanical measuring and dispensing devices increase our personnel productivity and reduce fatigue and physical injury. Hand measuring and dispensing would be more inefficient, take more time, and the prairie dog population could quickly become unmanageable.
3. **Hand Application may result in a higher incidence of off-label use of product** because mechanical application achieves a higher consistency of application from start to finish. The deviation in treatment amounts is significantly reduced when using properly calibrated equipment. Due to the frequent and repetitive nature of applying this product, it would be difficult for hand applications to attain similar levels of uniformity. Consistency is the key to effective control; under-application will not achieve proper control, and over-application is expensive and a misuse of the product. Even if the product could be precisely measured each time, a very conscientious person may still have accidental hand spillage.

Once again, thank you for your time and consideration of our request.

Sincerely,

Wallace County Board of Commissioners

*Adam W. Smith*  
*Michael Cowles*



Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

**Cooperative Extension Service**  
K-State Research and Extension  
Hamilton County Extension Office  
520 North Hamilton • Box 629  
Syracuse, Kansas 67878-0629  
620-384-5225  
FAX 620-384-7576  
hm@oznet.ksu.edu

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
to permit use of mechanical applicators for burrow baiting.

To whom it may concern,

It has come to my attention that our recent use practice of using mechanical baiters to apply Rozol Prairie Dog Bait may now be questioned by some enforcement authorities driven by the wording "hand" shown on the Sec. 3 product label.

*3. Application Method: Hand application of bait, at least 6 inches down prairie dog burrows.*

As you know, earlier 24(c) labels issued for states including KS, NE and WY dating back to 2006 did not have such a "by hand only" limitation.

#### JUSTIFICATION

Weed boards and licensed custom applicators have been using mechanical baiters responsibly for years without incidence of off-label use or secondary hazard to wildlife. These mechanical devices are calibrated and reliable. The devices are critical to our ability to manage the spread of this pest, and apply bait accurately in a time-efficient and cost-effective manner. Mechanical baiters are essential to avoiding human error and fatigue, as well as to enable getting the bait out during limited periods of favorable weather following snow melt during the short application window. There is simply no other method as effective at treating the extensive acreage, ensuring all active burrows are treated, and guaranteeing that the bait is "six inches down-the-burrow" according to the label.

Restricting the label to "by hand only" will make it virtually impossible to treat large infestations of 100's of acres walking around with a ladle and a bucket.

We request that a "Special Local Need" 24(c) registration be issued to allow this Rozol Prairie Dog Bait to be applied down the burrow with the assistance of mechanical application devices.

Sincerely,

Jeff Wilson, Hamilton County Extension Agent

Hamilton County  
Kansas State University  
Agricultural Experiment  
Station and Cooperative  
Extension Service.  
K-State, County Extension  
Councils, Extension Districts, and  
U.S. Department of Agriculture  
Cooperating.  
All educational programs and  
materials available without  
discrimination on the basis of race,  
color, religion, national origin, sex,  
age, or disability.

*"Knowledge  
for Life"*



Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612



Kansas State University

K-State Research and Extension  
Stanton County  
Courthouse  
201 North Main  
P.O. Box L  
Johnson, KS 67855-0330  
620-492-2240  
Fax: 620-492-3342

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
to permit use of mechanical applicators for burrow baiting.

To whom it may concern,

It has come to my attention that our recent use practice of using mechanical baiters to apply Rozol Prairie Dog Bait may now be questioned by some enforcement authorities driven by the wording "hand" shown on the Sec. 3 product label.

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As you know, earlier 24(c) labels issued for states including KS, NE and WY dating back to 2006 did not have such a "by hand only" limitation.

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We request that a "Special Local Need" 24(c) registration be issued to allow this Rozol Prairie Dog Bait to be applied down the burrow with the assistance of mechanical application devices.

Sincerely,

Frank D. Swan, Stanton County Extension Agent, AgINRC

Stanton County  
Kansas State University  
Agricultural Experiment  
Station and Cooperative  
Extension Service  
K-State, County Extension  
Councils, Extension Districts,  
and U.S. Department of  
Agriculture Cooperating.  
K-State Research and  
Extension is an equal  
opportunity provider and  
employer.

"Knowledge  
for Life"

November 29, 2010

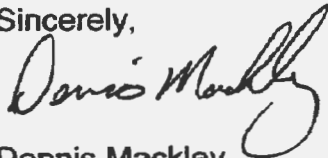
To whom it may concern:

It is in my personal opinion observed through hundreds of hours involved with the application process of Rozol, that mechanical baiters are essential when it comes to control of the black-tailed prairie dog. Mechanical baiters are the most accurate dispersal method. It releases the calibrated amount of Rozol product directly over and only inches above the drop site. This method releases the accurately measured amount of product (at least six inches below the burrow surface) without leaving any residual kernels above the ground for scavengers. I am concerned that if ranchers are forced to use other means of application (such as a bucket and ladel, distributing manually) that the results will be "sloppy" to say the least, and most likely off label compared to mechanical baiter distribution.

When Charlie Lee did all the studies for KSU, it was successfully done using mechanical baiters and following strict label use of the product - Rozol. Not allowing mechanical baiters to be used would be an absolute waste of personal time and product, as well as physically dangerous because of the human contact with the poison. But, maybe this result is what the EPA is seeking.

I hope that we can continue to apply Rozol in the manner in which it has been done [effectively] in the past - using mechanical baiters.

Sincerely,



Dennis Mackley  
Pest Control Business Owner





November 29, 2010

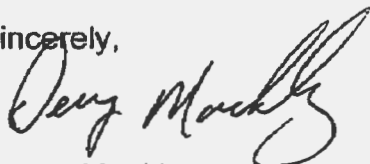
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I hope that we can continue to apply Rozol in the manner in which it has been done [effectively] in the past - using mechanical baiters.

Sincerely,



Denny Mackley  
Logan County Prairie Dog Department



1701 W. Eighth Street  
Liberal, KS 67901  
620-626-3363-Phone  
620-626-3348-Fax

**SEWARD COUNTY  
NOXIOUS WEED  
DEPARTMENT**

TO: Kansas Dept. of Agriculture	Date: 12/02/2010
Fax #:	Attention: Pesticide Registration
Phone #:	RE: 2 Pages (incld this one)

To Whom it May Concern:

We believe very strongly that the applicator in this county should not be made to use hand application of prairie dog bait. We just had an instance yesterday where a county residence was baiting her own land by hand and had to kill a rattle snake with a shovel and another got back into the burrow before she could get to it. This would most certainly put our applicator in danger not to mention the additional cost in labor and hours to do the large amount of baiting that we do, if it had to be done by hand.

Thank You for your consideration in this matter.

Sincerely,

Tony Herrman Road & Bridge, Noxious Weed Department Supervisor

John Garinger-Seward County Noxious Weed Director

182



Ralph Ostmeyer  
Senator 40<sup>th</sup> District  
P O Box 97  
Grinnell, KS 67738-0097

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
to permit use of mechanical applicators for burrow baiting.

To whom it may concern,

It has come to my attention that our recent use practice of using mechanical baiters to apply Rozol Prairie Dog Bait may now be questioned by some enforcement authorities driven by the wording "hand" shown on the Sec. 3 product label.

*3. Application Method: Hand application of bait, at least 6 inches down prairie dog burrows.*

As you know, earlier 24(c) labels issued for states including KS, NE and WY dating back to 2006 did not have such a "by hand only" limitation.

#### JUSTIFICATION

Weed boards and licensed custom applicators have been using mechanical baiters responsibly for years without incidence of off-label use or secondary hazard to wildlife. These mechanical devices are calibrated and reliable. The devices are critical to our ability to manage the spread of this pest, and apply bait accurately in a time-efficient and cost-effective manner. Mechanical baiters are essential to avoiding human error and fatigue, as well as to enable getting the bait out during limited periods of favorable weather following snow melt during the short application window. There is simply no other method as effective at treating the extensive acreage, ensuring all active burrows are treated, and guaranteeing that the bait is "six inches down-the-burrow" according to the label.

Restricting the label to "by hand only" will make it virtually impossible to treat large infestations of 100's of acres walking around with a ladle and a bucket.

We request that a "Special Local Need" 24(c) registration be issued to allow this Rozol Prairie Dog Bait to be applied down the burrow with the assistance of mechanical application devices.

Sincerely,

Senator Ralph Ostmeyer  
KS 40<sup>th</sup> District

Below is a copy of the letter in case your computer doesn't have the correct program to open the attached file.

Thanks,  
Sheila

*Sheila Nicko*



Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka , KS 66612

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
to permit use of mechanical applicators for burrow baiting.

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3. *Application Method: Hand application of bait, at least 6 inches down prairie dog burrows.*

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Sincerely,

*Sheila Nicko*



Ralph D. Unger  
Stanley A. McEvoy  
Gene Gallentine  
Commissioners  
785-475-8101

Colleen Geihlsler  
County Clerk  
785-475-8102

Jean Ann Hale  
County Treasurer  
785-475-8103

Steven W. Hirsch  
County Attorney  
785-475-8104

Kari Ketterl  
Register of Deeds  
785-475-8105

Ken Badsy  
County Sheriff  
785-475-8100

EM Director  
785-475-8100

John E. Bremer  
Magistrate Judge  
785-475-8108

Janet Meitl  
Clerk Of The District Court  
785-475-8107

Tim Stallman  
Road Supervisor  
785-475-8111

Gaylen Huntley  
County Weed Director  
785-475-8128

Alan W. Hale  
County Appraiser  
785-475-8109

Marilyn Gamblin  
Health Administrator  
785-475-8118

Linda Manning  
EMS Director  
785-475-8126

Jeanne Pachner  
Chief Dispatcher  
785-475-8110

Bill Cathcart  
Fire Chief  
785-475-8100



# County Of Decatur

P.O. Box 28

Oberlin, Kansas 67749-\_\_\_\_\_

RECEIVED

DEC 08 2010

KDA-INSPECTIONS

December 7, 2010

Kansas Dept. of Ag  
Pesticide Registration  
109 SW 9<sup>th</sup> St.  
Topeka, Ks 66612

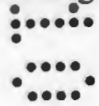
Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA # 7173-286)  
To permit use of mechanical applicators for burrow baiting.

To whom it may concern,

We have received information and letters that point out that, mechanical baiters to apply Rozol Prairie Dog Bait is being questioned by enforcement authorities due to the wording "hand" shown on the Sec.3 product label.

3. Application Method: Hand application of bait, at least 6 inches down prairie dog burrows.

Decatur County does not own one of these mechanical baiters; we do rely on those who do to treat the larger areas of prairie dogs. The mechanical baiter is a safe and faster way for us to be able to treat prairie dogs. The last few years we have noticed the increase of prairie dogs in our county and the start of new colonies. We have kept up with this by using the hand method, however if any of the larger colonies were needed to be controlled we would be unable to control them properly by using the hand method costing the land owner more, for labor per acre to control their prairie dogs. In the past the old 24c we ran under there, was no mention of "hand only" and mechanical baiters were brought in and used to great success. Rozol is a very good product and does a good job at controlling unwanted prairie dogs.



Ralph D. Unger  
Stanley A. McEvoy  
Gene Gallentine  
*Commissioners*  
785-475-8101

Colleen Geihlsler  
*County Clerk*  
785-475-8102

Jean Ann Hale  
*County Treasurer*  
785-475-8103

Steven W. Hirsch  
*County Attorney*  
785-475-8104

Kari Ketterl  
*Register of Deeds*  
785-475-8105

Ken Badsy  
*County Sheriff*  
785-475-8100

EM Director  
785-475-8100

John E. Bremer  
*Magistrate Judge*  
785-475-8108

Janet Meitl  
*Clerk Of The District Court*  
785-475-8107

Tim Stallman  
*Road Supervisor*  
785-475-8111

Gaylen Huntley  
*County Weed Director*  
785-475-8128

Alan W. Hale  
*County Appraiser*  
785-475-8109

Marilyn Gamblin  
*Health Administrator*  
785-475-8118

Linda Manning  
*EMS Director*  
785-475-8126

Jeanne Pachner  
*Chief Dispatcher*  
785-475-8110

Bill Cathcart  
*Fire Chief*  
785-475-8100



# County Of Decatur

P.O. Box 28

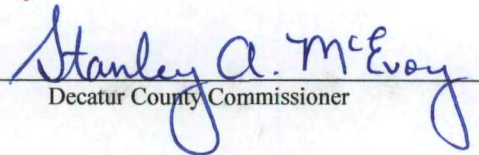
Oberlin, Kansas 67749-\_\_\_\_\_

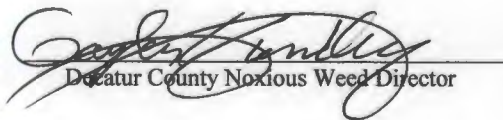
We request that a "Special Local Need" 24(c) registration be issued to allow this Rozol Prairie Dog Bait to be applied down the burrow with assistance of mechanical baiters to allow us to keep up with our Prairie Dog control program.

Sincerely

  
Decatur County Commissioner

  
Decatur County Commissioner

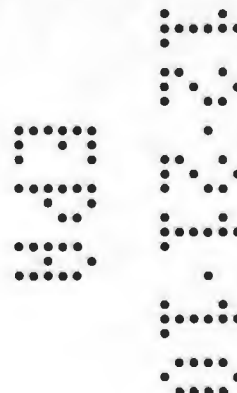
  
Decatur County Commissioner

  
Decatur County Noxious Weed Director

RECEIVED

DEC 08 2010

KDA-INSPECTIONS





Thomas Schmit

---

**From:** Lynn [REDACTED]  
**Sent:** Thursday, December 02, 2010 10:14 AM  
**To:** Thomas Schmit  
**Subject:** Mechanical baiters

To Whom It May Concern,

The use of mechanical baiters have been highly important to the control of pests on our operation. They have been used responsibly and safely without endangering non-targeted species. The use of mechanical baiters have insured the proper placement and quantity of the bait. The phrase (by hand ) did not appear until recently on the label. There has not been any confirmed deaths of non-targeted species in our area. Having had close to a hundred acres of the pests the baiter has given us an economical means to controlling them.

Sincerely,  
Lynn Kirkham

[REDACTED]  
[REDACTED]

187

# MEADE COUNTY WEED DEPT.

P.O. Box 687, 611 Madison  
Meade, Kansas 67864

Phone (620) 873-8730  
Mike J. Friesen, Director

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

RECEIVED

DEC 01 2010

KDA-INSPECTIONS

**Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
to permit use of mechanical applicators for burrow baiting.**

To whom it may concern,

It has come to my attention that some enforcement authorities driven by the wording "hand" shown on the Sec. 3 product label may now question our recent use practice of using mechanical baiters to apply Rozol Prairie Dog Bait.

*3. Application Method: Hand application of bait, at least 6 inches down prairie dog burrows.*

As you know, earlier 24(c) labels issued for states including KS, NE and WY dating back to 2006 did not have such a "by hand only" limitation.

## JUSTIFICATION

Weed boards and licensed custom applicators have been using mechanical baiters responsibly for years without incidence of off-label use or secondary hazard to wildlife. These mechanical devices are calibrated and reliable. The devices are critical to our ability to manage the spread of this pest, and apply bait accurately in a time-efficient and cost-effective manner. Mechanical baiters are essential to avoiding human error and fatigue, as well as to enable getting the bait out during limited periods of favorable weather following snow melt during the short application window. There is simply no other method as effective at treating the extensive acreage, ensuring all active burrows are treated, and guaranteeing that the bait is "six inches down-the-burrow" according to the label.

Restricting the label to "by hand only" will make it virtually impossible to treat large infestations of 100's of acres walking around with a ladle and a bucket. Walking also subjects the applicator to numerous rattlesnakes.

We request that a "Special Local Need" 24(c) registration be issued to allow this Rozol Prairie Dog Bait to be applied down the burrow with the assistance of mechanical application devices.

Sincerely,

*Mike J. Friesen*



# Sherman County

Sherman County Commissioners  
813 Broadway, Room 101  
Goodland, Kansas 67735  
Phone: 785-890-4807  
Fax: 785-890-4809

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

RECEIVED

DEC 02 2010

KDA-INSPECTIONS

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We request that a "Special Local Need" 24(c) registration be issued to allow this Rozol Prairie Dog Bait to be applied down the burrow with the assistance of mechanical application devices.

Sincerely,

*Chuck Stone* chairman  
*Miss Lucie V.P.*  
*Cory KSTL*



Morton County Weed Department

P.O. Box 321

Rolla, KS 67954

RECEIVED

DEC 10 2010

KDA-INSPECTIONS

Kansas Dept. of Agriculture

Pesticide Registration

109 SW 9<sup>th</sup> Street

Topeka, KS 66612

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We request that a "Special Local Need" 24 (c) registration be issued to allow this Rozol Prairie Dog Bait to be applied down the burrow with the assistance of mechanical application devices.

Sincerely,

*Gwen Rodriguez*  
Gwen Rodriguez, Director

GR/lh.



Board of Finney County Commissioners  
311 North Ninth Street  
Garden City, KS 67846

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

RECEIVED

DEC 08 2010

KDA-INSPECTIONS

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#### SAFETY

Restricting the label to "by hand only" increases the applicators exposure to rattlesnake bite, personal exposure to the pesticide, and chance of contraction of plague by the applicator.

We request that a "Special Local Need" 24(c) registration be issued to allow this Rozol Prairie Dog Bait to be applied down the burrow with the assistance of mechanical application devices.

Chairman

Commissioner

Commissioner

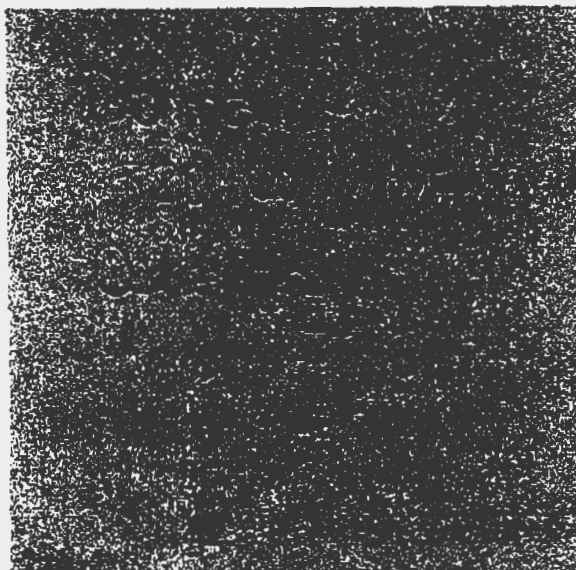
Commissioner

Commissioner

Dec 6 - 2010

Below is a copy of the letter in case your computer doesn't have the correct program to open the attached file.

Thanks,  
Sheila



Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka , KS 66612

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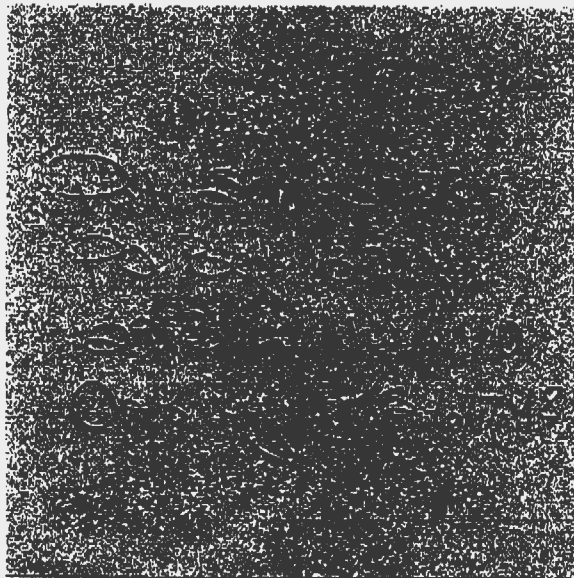
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Pesticide Registration  
109 SW 9th Street  
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Sincerely,

[Redacted signature block]

Dennis Mackley



Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Sincerely,

Dennis Mackley owner



Logan Co. Prairie Dog Dept.  
2512 Co. Rd. 230  
Box 264  
Winona, KS 67764

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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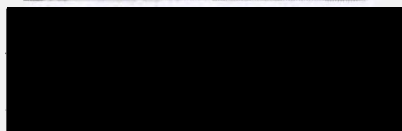
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Sincerely,

*D. M. Maddy* Director

Glen Good



Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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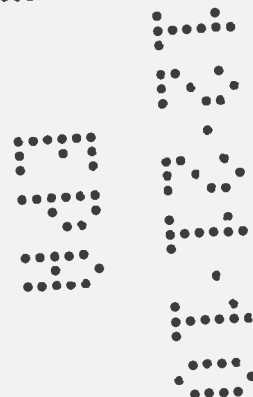
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Sincerely,

A handwritten signature in dark ink, appearing to read "Glen Good", written over a horizontal line.





\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Sincerely,

\_\_\_Bob Stewart, [REDACTED]



\*Personal privacy information\*

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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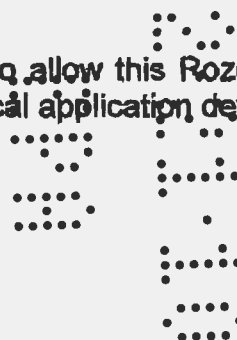
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Sincerely,

*Jane Beasley*





Fax to:

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Sincerely,

*Steve & Dianne Schlegel*

Greg Sederstrom  
[REDACTED]

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Sincerely,

  
Greg Sederstrom

3500



Dwight N. Abell

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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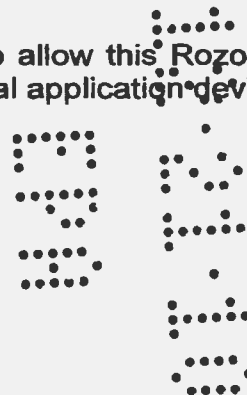
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Caleb Couchman

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
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Caleb Couchman



Alexa Ellis



Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
to permit use of mechanical applicators for burrow baiting.

To whom it may concern,

It has come to my attention that our recent use practice of using mechanical baiters to apply Rozol Prairie Dog Bait may now be questioned by some enforcement authorities driven by the wording "hand" shown on the Sec. 3 product label.

*3. Application Method: Hand application of bait, at least 6 inches down prairie dog burrows.*

As you know, earlier 24(c) labels issued for states including KS, NE and WY dating back to 2006 did not have such a "by hand only" limitation.

#### JUSTIFICATION

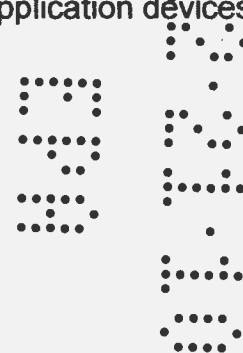
Weed boards and licensed custom applicators have been using mechanical baiters responsibly for years without incidence of off-label use or secondary hazard to wildlife. These mechanical devices are calibrated and reliable. The devices are critical to our ability to manage the spread of this pest, and apply bait accurately in a time-efficient and cost-effective manner. Mechanical baiters are essential to avoiding human error and fatigue, as well as to enable getting the bait out during limited periods of favorable weather following snow melt during the short application window. There is simply no other method as effective at treating the extensive acreage, ensuring all active burrows are treated, and guaranteeing that the bait is "six inches down-the-burrow" according to the label.

Restricting the label to "by hand only" will make it virtually impossible to treat large infestations of 100's of acres walking around with a ladle and a bucket.

We request that a "Special Local Need" 24(c) registration be issued to allow this Rozol Prairie Dog Bait to be applied down the burrow with the assistance of mechanical application devices.

Sincerely,

Alexa R. Ellis



**Brittan Ellis**  
[REDACTED]

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
to permit use of mechanical applicators for burrow baiting.

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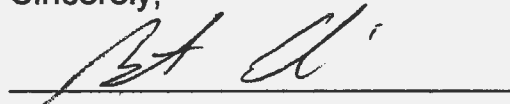
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We request that a "Special Local Need" 24(c) registration be issued to allow this Rozol Prairie Dog Bait to be applied down the burrow with the assistance of mechanical application devices.

Sincerely,





Sheila Ellis

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
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Sincerely,



Carl F. Hanson

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Carl F. Hanson



Mark Alan Hanson

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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We request that a "Special Local Need" 24(c) registration be issued to allow this Rozol Prairie Dog Bait to be applied down the burrow with the assistance of mechanical application devices.

Sincerely,

Mark Alan Hanson

Susan Jill Hanson

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
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Sincerely,

*Susan Jill Hanson*



R. Glenn Mitchell

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
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Sincerely,

*Glenn Mitchell*

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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We request that a "Special Local Need" 24(c) registration be issued to allow this Rozol Prairie Dog Bait to be applied down the burrow with the assistance of mechanical application devices.

Sincerely,



*Please continue the label as it is presently. I have used measured mechanical applicator as well as hand application - Both have a place.*



Bryon Sowers

12-1-10

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Sincerely,

Bryon Sowers

11/30/2010

Clifton Sowers

Dec. 1, 2010

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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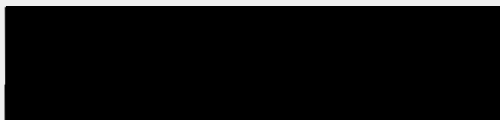
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Clifton Sowers



Linda SowersDec. 1, 2010

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Sincerely,

Linda Sowers

11/30/2010

Byron Sowers

Dec. 1, 2010

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
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Sincerely,

Byron Sowers

11/30/2010

214



Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Sincerely,

Ronald R. Pett

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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\_\_\_\_\_  
\_\_\_\_\_  
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Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
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Sincerely,

AgriDg Hall

RECEIVED

DEC '10 2010

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Sincerely,

*David Larson*



Heather Zew

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Sincerely,

Heather Zew

Wesley D. Mather



Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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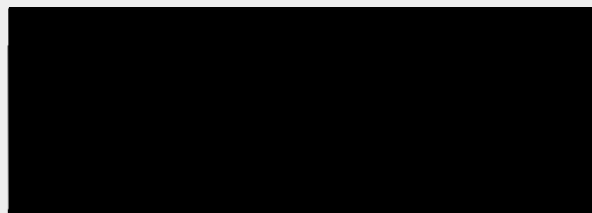
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Sincerely,

A handwritten signature in cursive script, appearing to read "Wesley D. Mather", written over a horizontal line.



Debbie Mather



Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
to permit use of mechanical applicators for burrow baiting.

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Debbie Mather

Norma J. Mai  
[REDACTED]

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Norma J. Mai



Leroy H. Mai  
[REDACTED]

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Leroy H. Mai

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Garry D Berggren  
[REDACTED]

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

December 1, 2010

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
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Garry D Berggren



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Thanks,  
Sheila

*Richard L. Kossnick*



Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka , KS 66612

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*Richard L. Kossnick*

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Sheila

Stuart Close  


Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka , KS 66612

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Stuart Close



Henry Charles Kirk II



Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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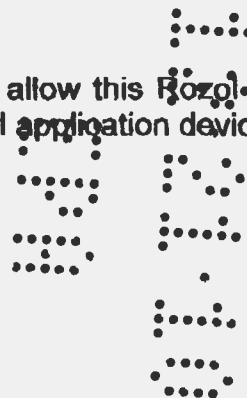
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GABE LAWRENCE JR -

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Sincerely,



11/30/2010



  
Debra Potter  


12-1-10

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Debra K Potter

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Blake Potter

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Blake Potter



Norma Darnall

Dec. 1010

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Norma Darnall

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Thanks,  
Sheila

*Charles Anderson*



Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka , KS 66612

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*Charles Anderson*



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Thanks,  
Sheila

*Chas. C. Beamer*



Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka , KS 66612

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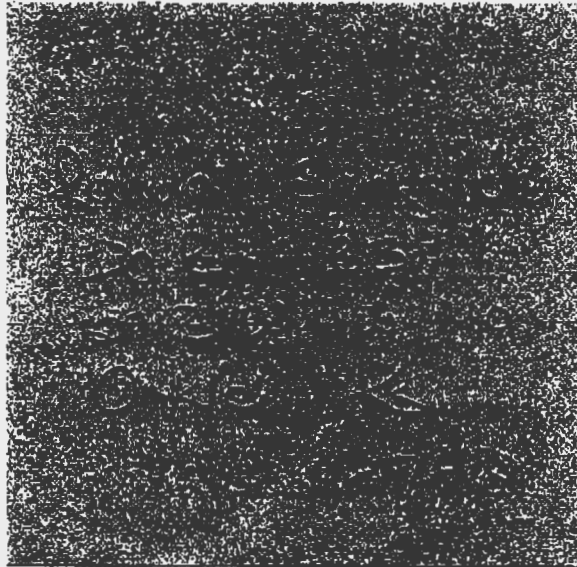
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Pesticide Registration  
109 SW 9th Street  
Topeka , KS 66612

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Thanks,  
Sheila

*Billy M Warren*



Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka , KS 66612

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Sincerely,

*Billy M Warren*

Mark Ellis

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Weed boards and licensed custom applicators have been using mechanical baiters responsibly for years without incidence of off-label use or secondary hazard to wildlife. These mechanical devices are calibrated and reliable. The devices are critical to our ability to manage the spread of this pest, and apply bait accurately in a time-efficient and cost-effective manner. Mechanical baiters are essential to avoiding human error and fatigue, as well as to enable getting the bait out during limited periods of favorable weather following snowmelt during the short application window. There is simply no other method as effective at treating the extensive acreage, ensuring all active burrows are treated, and guaranteeing that the bait is "six inches down-the-burrow" according to the label.

Restricting the label to "by hand only" will make it virtually impossible to treat large infestations of 100's of acres walking around with a ladle and a bucket.

We request that a "Special Local Need" 24(c) registration be issued to allow this Rozol Prairie Dog Bait to be applied down the burrow with the assistance of mechanical application devices.

Sincerely,





Kulver Ellis

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
to permit use of mechanical applicators for burrow baiting.

To whom it may concern,

It has come to my attention that our recent use practice of using mechanical baiters to apply Rozol Prairie Dog Bait may now be questioned by some enforcement authorities driven by the wording "hand" shown on the Sec. 3 product label.

*3. Application Method: Hand application of bait, at least 6 inches down prairie dog burrows.*

As you know, earlier 24(c) labels issued for states including KS, NE and WY dating back to 2006 did not have such a "by hand only" limitation.

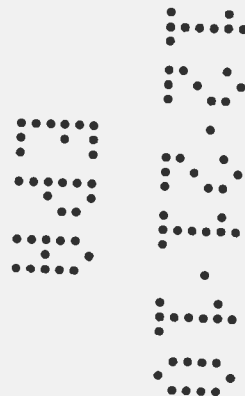
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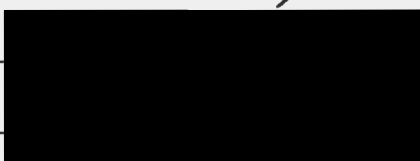
Sincerely,



\* Personal privacy information \*

Below is a copy of the letter in case your computer doesn't have the correct program to open the attached file.

Thanks,  
Sheila

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka , KS 66612

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
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As you know, earlier 24(c) labels issued for states including KS, NE and WY dating back to 2006 did not have such a "by hand only" limitation.

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We request that a "Special Local Need" 24(c) registration be issued to allow this Rozol Prairie Dog Bait to be applied down the burrow with the assistance of mechanical application devices.

Sincerely,







Unified Greeley County  
Board of Supervisors  
616 Second Street  
Tribune, KS 67879

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
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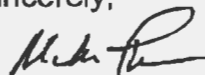
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Sincerely,



Mike Thon, Chairman

Hamilton County Board Commissioners  
Box 1167  
Syracuse KS 67878  
620-384-5629

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
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Sincerely,  
  
Randall C. Braddock  
Chairman

Rawlins County Board of Commissioners

607 Main #C

Atwood, KS. 67730

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Sincerely,

*Charles E. Unger*  
*William R. Henry*

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## LOGAN COUNTY COMMISSIONERS

Carl Uhrich  
Commissioner 1st District

Robert K. Scott  
Commissioner 2nd District

Clint Kvasnicka  
Commissioner 3rd District

710 West Second • Oakley, Kansas 67748-1233 • Telephone 785-671-4244

November 29, 2010

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
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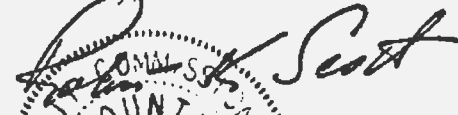
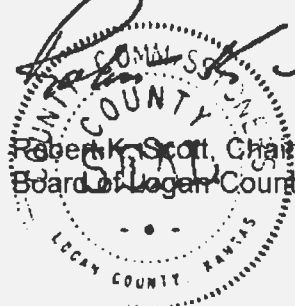
### JUSTIFICATION

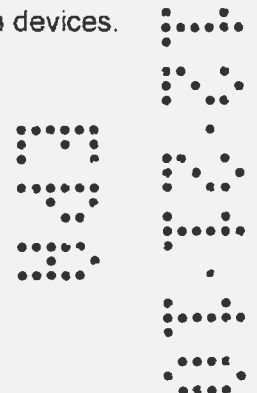
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We request that a "Special Local Need" 24(c) registration be issued to allow this Rozol Prairie Dog Bait to be applied down the burrow with the assistance of mechanical application devices.

Sincerely,

  
  
Robert K. Scott, Chairman  
Board of Logan County Commissioners



# Thomas County

December 2, 2010

300 N. Court  
Colby, Kansas 67701

**Commissioners**  
Bryon Sowers  
Paul M. Steele  
Ken Christiansen  
785-460-4510

**Shelly Harms**  
County Clerk  
785-460-4500  
Fax: 785-460-4503

**Donita Applebury**  
County Treasurer  
785-450-4520  
Fax: 785-460-4524

**Bruce Flipse**  
County Attorney  
785-460-4580  
Fax: 785-460-0927

**Lora Volk**  
Register of Deeds  
785-460-4535  
Fax: 785-460-4512

**Rod Taylor**  
Sheriff  
785-460-4570  
Fax: 785-460-3877

**Clair L. Schrock**  
Road Supervisor  
Noxious Weed Director  
785-460-4562

**Larry Jumper**  
Landfill Supervisor  
785-462-8139  
Fax: 785-462-6717

**Kasiah Rothchild**  
Health Dept. Director  
785-460-4596  
Fax: 785-460-4595

**Susan McMahan**  
Emergency  
Management Director  
785-460-4516  
Fax: 785-460-4518

**Ken Gatlin**  
EMS Director  
785-460-4585  
Fax: 785-460-4586

Kansas Department of Agriculture  
Pesticide Registration  
109 SW 9<sup>th</sup> Street  
Topeka, KS 66612

RE: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
to permit use of mechanical applicators for burrow baiting

To Whom It May Concern:

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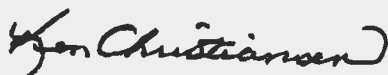
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As you know, earlier 24(c) labels issued for states including Kansas, Nebraska, and Wyoming dating back to 2006 did not have such a "by hand only" limitation.

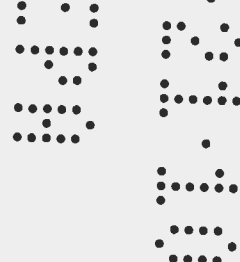
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Restricting the label to "by hand only" will make it virtually impossible to treat large infestations of hundreds of acres walking around with a ladle and a bucket. We request that a "Special Local Need" 24(c) registration be issued to allow this Rozol Prairie Dog Bait to be applied down the burrow with the assistance of mechanical application devices.

Sincerely,



Ken Christiansen  
Chairman, County Commissioners



Robert Simminger Noxious Weed Director  
[REDACTED] [REDACTED]

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
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Mechanical baiters are necessary to provide farmers and ranchers an affordable and efficient means of protecting their property from the prairie dog, a destructive rodent. Weed boards and licensed custom applicators have been using mechanical baiters responsibly for years without incidence of off-label use or secondary hazard to wildlife. Mechanical baiters are essential for the health safety of the applicators handling the pesticide. There is simply no other method as effective at treating the extensive acreage, ensuring all active burrows are treated, and guaranteeing that the bait is "six inches down-the-burrow" according to the label.

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Sincerely,

*Robert Simminger*  
R & Co., Nox Weed Dir.



Justin Lohr

Director—Cheyenne Co. noxious weed dept.

212 E. Washington

St. Francis, KS 67756

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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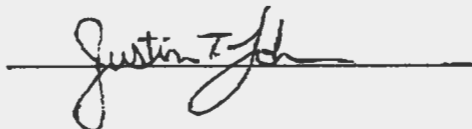
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Sincerely,



Kearny County Noxious Weed DeptRoy L. Bushek, DirectorPO Box 129Lakin, KS 67860-0129

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Sincerely,

Tom Wright IV

Chairman of the Board

**Seward County Noxious Weed****1701 West Eighth St.****Liberal, KS 67901****620-626-6693**

**Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612**

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**Sincerely,**

**John Garinger-Noxious Weed Director**



12/01/2010 14:57

PAGE 04/04

\*Personal privacy information\*

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Sincerely,

*Burt S. Bertram*

\*Personal privacy information\*

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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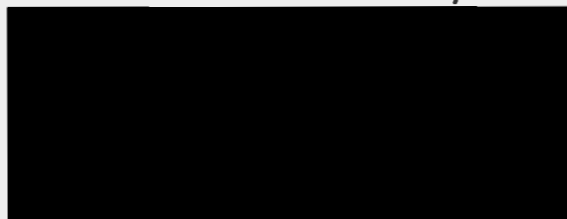
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Sincerely,

Shilea Bostland

James L. Ludolph



Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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We request that a "Special Local Need" 24(c) registration be issued to allow this Rozol Prairie Dog Bait to be applied down the burrow with the assistance of mechanical application devices.

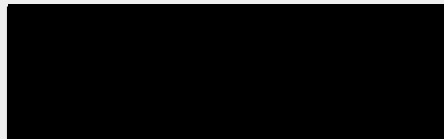
Sincerely,

James L. Ludolph





Christine E. Hammer



Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
to permit use of mechanical applicators for burrow baiting.

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Sincerely,

Christine E. Hammer



Lyle M. Hammer

[REDACTED]

[REDACTED]

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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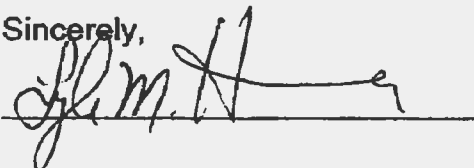
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Sincerely,

  
\_\_\_\_\_



Keith D Edwards

12-3-10

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Sincerely,

Keith D Edwards



Noxious Weed  
Department  
820-855-4940  
820-855-7704 (Fax)

## Gray County

915 N. Main  
Box 688  
Cimarron, KS 67835-0688

County Commissioners  
Dist. 1: Mark E. Busch  
Dist. 2: Glenn Oyler  
Dist. 3: David L. Loucks

RECEIVED  
DEC 13 2010

TO: KANSAS DEPARTMENT OF AGRICULTURE

FROM: GRAY COUNTY COMMISSIONERS

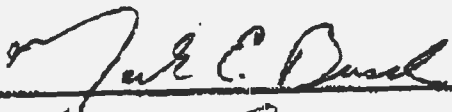
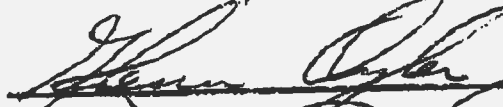

Dear Sirs,

We would appreciate it if you would reconsider your decision to disallow mechanical baiters for prairie dog treatment. We feel the accuracy of the baiters combined with the marking system provides superior quality and safety compared to a hand ladle. Rattlesnakes are a danger in prairie dog towns and workers on four-wheelers are much safer than an applicator walking from hole to hole. Also the four wheelers with bait applicators are 4 to 6 times faster than a person laboriously dipping, measuring, and walking to the next hole.

We have used mechanical baiters for 10 years with great success and no collateral damage as far as off-target applications. We feel the ban on these baiters is regressive thinking - analogous to banning wireless communications and insisting on land lines.

We request an immediate 24c exemption for the mechanical baiters and a permanent reversal of the decision to disallow them.

Sincerely,

Gray County Commissioners

Noxious Weed  
Department  
10-855-4540  
10-855-7704 (Fax)

# Gray County

915 N. Main  
Box 688  
Cimarron, KS 67835-0688

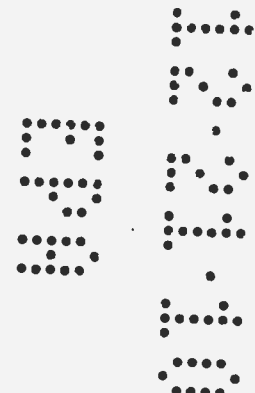
County Commissioners  
Dist. 1: Mark E. Busch  
Dist. 2: Glenn Oyler  
Dist. 3: David L. Loucks

RECEIVED  
DEC 13 2010



*Bob Anderson*

GRAY COUNTY NOXIOUS WEED DIRECTOR



RECEIVED

DEC 13 2010

Gayle Mollenkamp



Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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We request that a "Special Local Need" 24(c) registration be issued to allow this Rozol Prairie Dog Bait to be applied down the burrow with the assistance of mechanical application devices.

Sincerely,

12-7-10





RECEIVED

DEC 13 2010

Marilyn Malken Kamp Terev Trust

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
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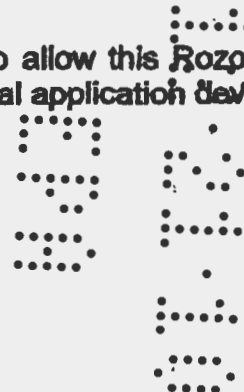
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Sincerely,

Lori Edwards, Ht 12-7-10



RECEIVED

DEC 13 2010


Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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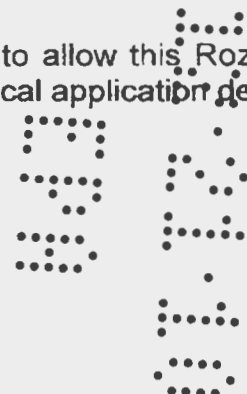
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Sincerely,

RECEIVED

DEC 13 2010

Justin Zech

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Sincerely,





RECEIVED

DEC 13 2010

Board of Finney County Commissioners  
311 North Ninth Street  
Garden City, KS 67846

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
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#### SAFETY

Restricting the label to "by hand only" increases the applicators exposure to rattlesnake bite, personal exposure to the pesticide, and chance of contraction of plague by the applicator.

We request that a "Special Local Need" 24(c) registration be issued to allow this Rozol Prairie Dog Bait to be applied down the burrow with the assistance of mechanical application devices.

Chairman

*Roman Halbur*  
Commissioner

*Don Doh*  
Commissioner

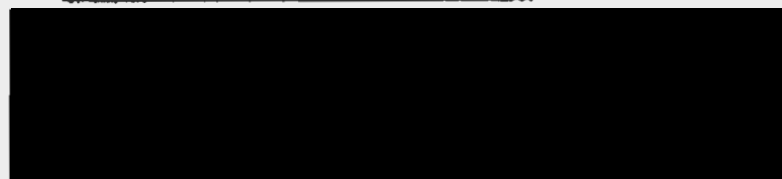
*Rave Jones*  
Commissioner

*Lance*  
Commissioner

Dec 6 - 2010

RECEIVED

DEC 13 2010

Lorelei J. Edwards

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Sincerely,

Lorelei J. Edwards



RECEIVED

DEC 13 2010

Rebecca Edwards

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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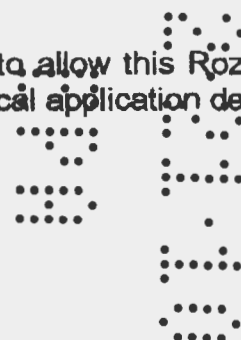
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Sincerely,

Rebecca Edwards



RECEIVED

DEC 13 2010

Cameron Edwards

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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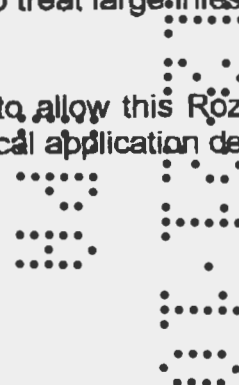
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Cameron Edwards



RECEIVED

DEC 13 2010

Darrel Dirks

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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Sincerely,

Darrel Dirks

did not coordinate with  
County on not using mechanical  
Baiters

RECEIVED

DEC 13 2010

\*Personal privacy information\*

Nancy Schertz

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
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Sincerely,

Nancy Schertz



DEC 13 2010

\*Personal privacy information\*

Tom Schertz

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

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#### JUSTIFICATION

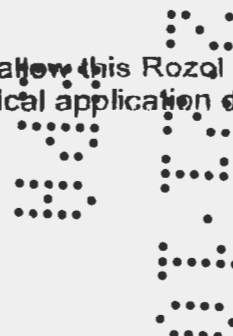
Weed boards and licensed custom applicators have been using mechanical baiters responsibly for years without incidence of off-label use or secondary hazard to wildlife. These mechanical devices are calibrated and reliable. The devices are critical to our ability to manage the spread of this pest, and apply bait accurately in a time-efficient and cost-effective manner. Mechanical baiters are essential to avoiding human error and fatigue, as well as to enable getting the bait out during limited periods of favorable weather following snow melt during the short application window. There is simply no other method as effective at treating the extensive acreage, ensuring all active burrows are treated, and guaranteeing that the bait is "six inches down-the-burrow" according to the label.

Restricting the label to "by hand only" will make it virtually impossible to treat large installations of 100's of acres walking around with a ladle and a bucket.

We request that a "Special Local Need" 24(c) registration be issued to allow this Rozol Prairie Dog Bait to be applied down the burrow with the assistance of mechanical application devices.

Sincerely,

Tom Schertz



DEC 13 2010

Shirley Berggren

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

December 1, 2010

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-286)  
to permit use of mechanical applicators for burrow baiting.

To whom it may concern,

It has come to my attention that our recent use practice of using mechanical baiters to apply Rozol Prairie Dog Bait may now be questioned by some enforcement authorities driven by the wording "hand" shown on the Sec. 3 product label.

3. *Application Method: Hand application of bait, at least 6 inches down prairie dog burrows.*

As you know, earlier 24(c) labels issued for states including KS, NE and WY dating back to 2006 did not have such a "by hand only" limitation.

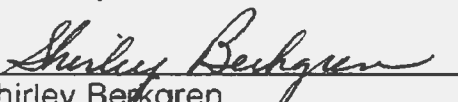
#### JUSTIFICATION

Weed boards and licensed custom applicators have been using mechanical baiters responsibly for years without incidence of off-label use or secondary hazard to wildlife. These mechanical devices are calibrated and reliable. The devices are critical to our ability to manage the spread of this pest, and apply bait accurately in a time-efficient and cost-effective manner. Mechanical baiters are essential to avoiding human error and fatigue, as well as to enable getting the bait out during limited periods of favorable weather following snow melt during the short application window. There is simply no other method as effective at treating the extensive acreage, ensuring all active burrows are treated, and guaranteeing that the bait is "six inches down-the-burrow" according to the label.

Restricting the label to "by hand only" will make it virtually impossible to treat large infestations of 100's of acres walking around with a ladle and a bucket.

We request that a "Special Local Need" 24(c) registration be issued to allow this Rozol Prairie Dog Bait to be applied down the burrow with the assistance of mechanical application devices.

Sincerely,

  
Shirley Berggren

DEC 13 2010

Joyce Keigh

Kansas Dept. of Agriculture  
Pesticide Registration  
109 SW 9th Street  
Topeka, KS 66612

Re: Request for 24(c) label for Rozol Prairie Dog Bait (EPA #7173-288)  
to permit use of mechanical applicators for burrow baiting.

To whom it may concern,

It has come to my attention that our recent use practice of using mechanical baiters to apply Rozol Prairie Dog Bait may now be questioned by some enforcement authorities driven by the wording "hand" shown on the Sec. 3 product label.

3. Application Method: Hand application of bait, at least 6 inches down prairie dog burrows.

As you know, earlier 24(c) labels issued for states including KS, NE and WY dating back to 2006 did not have such a "by hand only" limitation.

#### JUSTIFICATION

Weed boards and licensed custom applicators have been using mechanical baiters responsibly for years without incidence of off-label use or secondary hazard to wildlife. These mechanical devices are calibrated and reliable. The devices are critical to our ability to manage the spread of this pest, and apply bait accurately in a time-efficient and cost-effective manner. Mechanical baiters are essential to avoiding human error and fatigue, as well as to enable getting the bait out during limited periods of favorable weather following snow melt during the short application window. There is simply no other method as effective at treating the extensive acreage, ensuring all active burrows are treated, and guaranteeing that the bait is "six inches down-the-burrow" according to the label.

Restricting the label to "by hand only" will make it virtually impossible to treat large infestations of 100's of acres walking around with a ladle and a bucket.

We request that a "Special Local Need" 24(c) registration be issued to allow this Rozol Prairie Dog Bait to be applied down the burrow with the assistance of mechanical application devices.

Sincerely,

Joyce Keigh

